THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET WESTRAND LONDON TELEPHONE NUMBER—GERRARD 5358

No. XVIII. OF VOL. II., 1919.
No. 5018. Vol. CXCVII. LONDON, SATURDAY, NOVEMBER 1, 1919. Pp. 112—Price 10d.

Demy 8vo. 3s. net, postage 4d.

A NEW TREATMENT FOR GONORRHŒA.
By CHARLES RUSS, M.B.Lond., M.R.C.S.,
Physician-in-Charge Electro-therapeutic Department, Male Lock Hospital, London.

"This form of treatment merits further attention, as it is both scientific and ingenious."—BRITISH MEDICAL JOURNAL.
"We welcome this small work as pointing to a distinct advance in our efforts to master a disease so often belittled but which may have most dire results."—MEDICAL PRESS AND CIRCULAR.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C. 1.

Price 18s. net. Post free (inland), 18s. 9d.
NINETEENTH EDITION (REPRINTED).

SQUIRE'S COMPANION.

"SQUIRE'S COMPANION is a work of great practical value to medical practitioners, as well as to pharmaceutical chemists, dispensers, and pharmacologists."—THE BRITISH MEDICAL JOURNAL.

Published by J. & A. Churchill, 7, Great Marlborough-st., London, W.1.

FOURTH EDITION.
8vo. Pp. 260. With 40 Illustrations. Cloth. 6s. net.

SQUINT: its Causes, Pathology and Treatment.
By CLAUD WORTH, F.R.C.S.,
Surgeon, Royal London Ophthalmic Hospital (Moorfields), &c.
Bale, Sons & Danielsson, 83, Gt. Titchfield-street, &c.

Second Edition. 8 Plates and 38 Figs. Price 7s. 6d.

BELLAMY GARDNER'S SURGICAL ANÆSTHESIA.
"Its pages focus much valuable information."—BRIT. MED. JOUR.
London: Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, W.C.2.

HEALTH RESORTS of the BRITISH ISLANDS. With Maps, Illustrations, and Chapters on Climates, Baths, Sanatoria, &c. 2nd Edit. Price 6s. net. Postage 6d.
Edited by NEVILLE WOOD, M.D., M.R.C.P.
University of London Press, Warwick-square, E.C. 4.

Price 2s. 6d. net (postage 3d.).

OTITIS MEDIA
(MASTOID DISEASE).
SAVING THE HEARING OF THE DISCHARGING EAR WITH PERFORATED DRUMHEAD.
By CHARLES J. HEATH, F.R.C.S. Eng.,
Consulting Aurist, Metropolitan Asylums Board; late Surgeon, Throat Hospital, Golden Square, London.

"..... the efforts which for some years Mr. Charles J. Heath has made to convince otologists that the radical mastoid operation is out of date. As long ago as 1906 he expounded his views upon the cure of chronic suppuration of the middle ear without the removal of the drum or ossicles, or loss of hearing. Since then he has made the matter his constant study and observation, proving conclusively the value of the conservative mastoid operation which he has introduced."
—MEDICAL PRESS.
"We have no hesitation in describing Heath's paper as epoch-making. It is the first occasion in which the diagnosis of invisible tympanic conditions has been made possible as a guide to treatment."
—ST. BARTHOLOMEW'S HOSPITAL JOURNAL.
Baillière, Tindall & Cox, 8, Henrietta Street, Covent Garden, London, W.C. 2.

In 2 Vols. Fully Illustrated. Large 8vo. 42s. net.

SURGICAL CONTRIBUTIONS
From 1881–1916.
By RUTHERFORD MORISON, M.B., F.R.C.S.
With a Preface and full subject Index by W. D'OYLY GRANGE, M.D., C.M.
Vol. I. General Surgery. 15s. net. Vol. II. Abdominal Surgery. 30s. net.
"Will be widely read and used as a book of reference."—BRIT. MED. JL.
"On nearly every page are points of utmost importance."—LANCET.
Bristol: John Wright & Sons Ltd. London: Simpkin, Marshall & Co. Ltd.

Now Ready. Pp. xi. + 269. With 5 Charts. 5s. net.

ON ALCOHOLISM: Its Clinical Aspects and Treatment.
By FRANCIS HARE, M.D., Medical Superintendent of the NORWOOD SANATORIUM, Beckenham.
"Marked by candour, common sense, and moderation ..... likely to become the standard text-book."—BRITISH MEDICAL JOURNAL.
London: J. & A. Churchill, 7, Great Marlborough-street.

AN INTRODUCTION TO
GENERAL PHYSIOLOGY.
WITH PRACTICAL EXERCISES.
By WILLIAM MADDOCK BAYLISS, M.A., D.Sc., F.R.S.,
Professor of General Physiology in University College, London; Author of "Principles of General Physiology," &c.
With Diagrams. 8vo. 7s. 6d. net.
Longmans, Green & Co., 39, Paternoster-row, London, E.C. 4.

Demy 8vo. 412 pages, 12 Plates, and 122 Illus. Cloth. Price 10s. 6d. net.

EYE, NOSE, THROAT, AND EAR.
A Manual for Students and Practitioners.
By JAMES FORREST, M.B., Ch.B.Edin.
Henry Kimpton, Medical Publisher, 263, High Holborn, London, W.C.

SECOND EDITION. In 2 vols. 45s. net.

DEFORMITIES, including DISEASES of the BONES and JOINTS. A Text-book of Orthopædic Surgery.
Illustrated by 70 Plates and over 1000 Figures, with Notes of Cases.
By A. H. TUBBY, C.B., [illegible], 21s.
Second Edition: "The standard text-book in English on the subject."
THE LANCET.
First Edition: "Standard work on the subject in the English language."—BRITISH MEDICAL JOURNAL.
Macmillan & Co., Ltd., St. Martin's Street, London, W.C.

OXFORD MEDICAL PUBLICATIONS.

WAR NEUROSES AND SHELL SHOCK.
By Sir FREDERICK W. MOTT, [illegible], F.R.S.,
Brevet Lt.-Colonel, Senior Consulting Neurologist to the Maudsley Neurological Clearing Hospital, Denmark Hill, S.E.
Demy 8vo. 364 pp. Cloth. Illustrated in Black and White, with 3 Colour Plates. 16s. net.

PSYCHOSES OF THE WAR.
INCLUDING NEURASTHENIA AND SHELL SHOCK.
By H. C. MARR, Lt.-Col. R.A.M.C.(T.), M.D., F.R.F.P.S.,
Neurological Consultant to the Scottish Command; H.M. Commissioner of Control for Scotland, &c.
Demy 8vo. Cloth. 336 pp. With 60 Illustrations. 16s. net.

Henry Frowde and Hodder & Stoughton, 17, Warwick-square, Newgate-street, London, E.C. 4.

LEWIS'S PUBLICATIONS.

JUST PUBLISHED. FOURTH Edition. Thoroughly Revised. With Illustrations. Crown 8vo. 5s. net; post free, 5s. 5d.

THE DIAGNOSIS AND TREATMENT OF HEART DISEASE.
PRACTICAL POINTS FOR STUDENTS AND PRACTITIONERS.
By E. M. BROCKBANK, M.D. Vict., F.R.C.P., Hon. Physician, Royal Infirmary, Manchester, &c.
"The text is practicable and reliable as ever."—THE LANCET.

With 20 Photogravure Plates from Original Material and other Illustrations. Demy 8vo. 14s. net; post free, 14s. 6d., abroad, 15s.

OTOSCLEROSIS (Idiopathic Degenerative Deafness.)
By ALBERT A. GRAY, M.D., F.R.S.E.,
Lecturer on Diseases of the Ear, Glasgow University; Surgeon for Diseases of the Ear, Western Infirmary, Glasgow.
"We are grateful to possess the work."—THE LANCET.

JUST PUBLISHED. With 2 Maps and Plate. Demy 8vo. 9s. net; post 6d.

A VISION OF THE POSSIBLE:
WHAT THE R.A.M.C. MIGHT BECOME.
An account of some of the Medical Work in Egypt, together with a constructive criticism of the R.A.M.C.
By Sir JAMES W. BARRETT, C.B., C.M.G., M.D., M.S., F.R.C.S.Eng.
"The book should be read by all interested in military medical administration."—BRITISH MEDICAL JOURNAL.

*** Complete CATALOGUE post free on application.

LONDON: H. K. LEWIS & CO. LTD., 136 GOWER STREET & 24 GOWER PLACE, W.C. 1.
PUBLISHING AND WHOLESALE OFFICE, 23 GOWER PLACE, W.C. 1.

HOMMEL'S HÆMATOGEN

A natural organic IRON TONIC associated with nourishing albuminous proteids.

Entirely Free from Antiseptics.

AN EFFICACIOUS REMEDY IN SEVERAL FORMS OF ANÆMIA, associated with constitutional diseases, and A POWERFUL RESTORATIVE when much blood has been lost, as from wounds sustained in action, by post-partum hæmorrhage, or in the course of surgical operations.

IMPROVES THE GENERAL NUTRITION IN TUBERCULOSIS.

PALATABLE, APPETISING, and free from any constipating tendency.

☞ **Please note that HOMMEL'S HÆMATOGEN is and always has been manufactured in SWITZERLAND BY SWISS PROPRIETORS, and that a continuous supply is assured.**

In prescribing please always specify HOMMEL'S Hæmatogen.

Samples Free and Carriage Paid on application to—

HOMMEL'S HÆMATOGEN, 36/36a, St. Andrew's Hill, Doctors' Commons, LONDON, E.C.

LESLIES' ZŌPLA

(ZINC OXIDE PLASTER) **Formerly Zincoplast.**

THE PERFECTED SURGICAL PLASTER.

Instantly Self-adhesive. Will not slip wherever put. THE ONE REAL NON-IRRITATING PLASTER. Will keep without drying up.

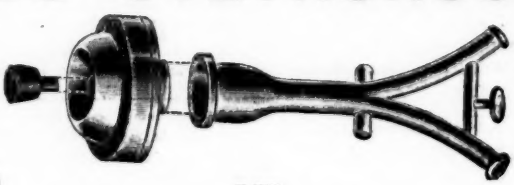
Supplied on White and Flesh-colour Cloths, also on Holland on Spools ¼" to 4" wide in 5 or 10 yard lengths in rolls 7" and 12" wide. Also on moleskin, chamois leather, felt, and waterproof cloth. **SAMPLES ON REQUEST.**

ZŌPLA is made by the firm with the reputation for BROWN HOLLAND STRAPPING (Original make).

LESLIES, Ltd. (British firm throughout), 62, London Wall, E.C. 2.

TESKE'S STETHONOSCOPE.

Comprises in itself 3 separate Instruments. A Stethoscope, as used with a Binaural, a Stethophonoscope, Phonoscope and Localiser.



V 4179.

Over 6,000 of these Instruments have been sold. We shall be pleased to submit on approval.

Renders the different sounds of the body natural, there being no resonance of the Instrument.

NO UNDRESSING OF PATIENT REQUIRED.

Price 16/6

Folding Head Piece and Tubing 8/6 extra.

SURGICAL MANUFACTURING COMPANY, 83-85, Mortimer Street, London, W. 1.

THE LANCET.

No. 5018. LONDON, SATURDAY, NOVEMBER 1, 1919. Vol. CXCVII.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

THE HARVEIAN ORATION on Forerunners of Harvey in Antiquity. Delivered before the Royal College of Physicians of London on St. Luke's Day (Oct. 18th), by RAYMOND CRAWFURD, M.A., M.D. Oxon., F.R.C.P. Lond., Physician and Lecturer on Clinical Medicine, King's College Hospital; Censor, Royal College of Physicians 765

AN ADDRESS on Hysteria in the Light of the Experience of War. Delivered before the American Neurological Association at Atlantic City, June 17th, 1919, by ARTHUR F. HURST, M.A., M.D.Oxon., F.R.C.P., Lieutenant-Colonel, R.A.M.C.; Physician and Neurologist to Guy's Hospital, London.—*(Illustrated)* 771

ORIGINAL ARTICLES.

Notes on the Serum Treatment of Bacillary Dysentery, and on Dysentery Arthritis. By BERNARD G. KLEIN, M.D. Oxon., late Temporary Captain, R.A.M.C. 775

The Use of Anti-Dysentery Serum in the Treatment of Bacillary Dysentery. A Series of 341 Consecutive Cases Treated in Mesopotamia, with Tabular Account of the Incidence of Complications. By W. E. WALLER, M.B., B.Ch.Oxon, Captain, R.A.M.C. (T.C.) 778

Œdema observed in a Monkey Fed on a Diet Free from the Fat-soluble "A" Accessory Food Factor and Low in Fat. By A. HARDEN, D.Sc., F.R.S., and S. S. ZILVA, D.Sc., Ph.D. (From the Biochemical Department, Lister Institute.).. 780

Some Curious Cases of Violent Excitement. By A. L. TAYLOR, B.Sc., M.B. Edin., F.R.C.P. Edin., Medical Superintendent, Craigend Neurasthenic Home 781

The Value of Antistreptococcus Serum in Influenza. By W. HUGHES, M.B., M.R.C.P. Edin., Captain, R.A.M.C., T.C., Holborn Military Hospital, Mitcham, Surrey.—*(Illustrated)* 782

The Medical Profession and the Nation's Health. By Sir MALCOLM MORRIS, K.C.V.O. 795

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A Case Illustrating the Use of Cardiac Massage in Circulatory Failure following the Administration of Chloroform, Ether, and Oxygen. By M. J. PETTY, Jun., M.B., B.C. Camb., F.R.C.S. Eng., Surgeon to the Model Institute of the Rawson Hospital, Buenos Aires 784

Perforation of the Cæcum by a Pin: Death from General Peritonitis. By JOHN A. C. MACEWEN, M.B., C.M., B.Sc., F.R.F.P.S. Glasg., Visiting Surgeon, Glasgow District Hospitals; Assistant Surgeon, Glasgow Royal Infirmary; Honorary Surgeon, Erskine Hospital for the Limbless, &c. 785

MEDICAL SOCIETIES.

MEDICAL SOCIETY OF LONDON: The Reclassification and Treatment of Pensioners 785

HARVEIAN SOCIETY OF LONDON: Gastric Ulcer 786

NORWICH MEDICO-CHIRURGICAL SOCIETY: Medicine and the State 787

REVIEWS AND NOTICES OF BOOKS.

Roentgenotherapy. By A. F. Tyler, B.Sc., M.D., Omaha, Nebraska 788

Notes on Galvanism and Faradism. By E. M. Magill, M.B., B.S. Lond. Second edition 788

Allgemeine Prognostik. By Professor Dr. Theodor Brugsch 788

The Military Surgeon 788

La Presse Médicale d'Egypte 788

LEADING ARTICLES.

THE PROBLEMS OF DISABLEMENT 789

WOMEN'S MEDICAL SERVICE IN INDIA 789

VIOLENT EXCITEMENT AS A RELEASE PHENOMENON 791

THE MEDICAL CONSULTATIVE COUNCIL 791

ANNOTATIONS.

The Reaction of Culture-Media 792

A Journal of Discovery 792

Nasal Hydrorrhœa 793

The Threat of Influenza 793

The Olympia Motor Exhibition 793

Serum Therapy in Bacillary Dysentery 794

The "Barta" Chronicle 794

Purpura Hæmorrhagica due to Neosalvarsan 794

SPECIAL ARTICLES.

Scotland: The Royal College of Surgeons of Edinburgh and the Naval and Military Medical Forces of the Empire 799

Ireland 800

Notes from India 801

Paris 801

Medicine and the Law 802

A Monthly Record of Atmospheric Pollution.—Meteorological Office: Advisory Committee on Atmospheric Pollution: Summary of Reports for the Months ending February 28th, 1919, and March 31st, 1919 803

Tuberculosis: Pulmonary Tuberculosis: Mortality after Sanatorium Treatment.—A Prospective Middlesex Sanatorium. — Tuberculosis in Cows.—Devon Tuberculosis Colony.—Opening of Kinver Sanatorium 803

Notes on Housing: Medical Appointments and the House Shortage. — Relaxation of Building By-laws.—The Right of Appeal.—Housing Conditions in Durham.—Dwelling-house *v.* Picture Palace. —Lectures on Housing 804

THE SERVICES.

Army Medical Service 805

Royal Army Medical Corps 805

Royal Air Force 805

India and the Indian Medical Service 805

The Honours List 805

URBAN VITAL STATISTICS:

English and Welsh Towns 805

Scotch Towns 805

Irish Towns 805

CORRESPONDENCE.

General Medical Council Elections: the Election of Direct Representatives for England (Dr. Alexander Blackhall-Morison) 806

Post-mortem Activity of the Liver after Diabetic Coma (Dr. E. Hobhouse) 806

Conjugal Tuberculosis (Dr. L. S. Burrell) 806

Cœliac Disease (Dr. Reginald Miller) 806

The Genesis of Cancer of the Uterus (Mr. W. Blair Bell) 807

Nurse Anæsthetists (Dr. J. Fredk. W. Silk) 807

Irish Public Health Council 807

The British Federation of Medical and Allied Societies 808

A New Surface Marking 814

Radiology and Radium Therapy 814

The Cult of the Scrubbing-brush 814

OBITUARY.

Adam Brunton Messer, M.D. Edin., Inspector-General of Hospitals and Fleets; Hon. Physician to the King.—*(With Portrait)* 808

Andrew Boyd Fulton, M.B., C.M. Glasg. 808

MEDICAL NEWS.

Medical Mayor 781

Royal Colleges of Physicians of London and Surgeons of England: Pass-list 809

University of Durham: Faculty of Medicine: Degrees Conferred 809

Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow: Pass-list 809

Royal College of Surgeons of Edinburgh: Pass-list 809

Royal Institution of Great Britain 809

University of London: Advanced Lectures in Physiology 809

Royal College of Physicians of Ireland 809

Royal Sanitary Institute 809

Brentford Union Infirmary 809

Royal Dental Hospital of London 809

Plague in the Port of London 810

The Food Education Society 810

Royal Society 810

The Red Cross in Norfolk 810

The Medico-Legal Society 810

The London Jewish Hospital 810

Medical Sickness Society 810

PARLIAMENTARY INTELLIGENCE.

House of Commons: Pension Appeals. — Rats and Mice Bill.—British Military Hospitals at Marseilles.—Victory Medal for Territorial Nurses. 810

NOTES, SHORT COMMENTS, &c.

Poverty in Relation to Pulmonary Tuberculosis 813

Medical Appointments under the Ministry of Pensions 813

A Prosecution under the Venereal Diseases Act, 1917 813

Fish-meal as a Food for Live-stock 814

A Useful Maternity Belt 814

Colonial Health Reports 814

National Baby Week Council 814

Appointments 811

Vacancies 811

Births, Marriages, and Deaths 811

Medical Diary 812

Acknowledgments of Communications received 812

MALARIA AND ITS TREATMENT: In the Line and at the Base.

By Captain A. CECIL ALPORT, R.A.M.C. Demy 8vo. 300 pp. 27 Plates (8 Coloured). **21s.** net, postage 6d.

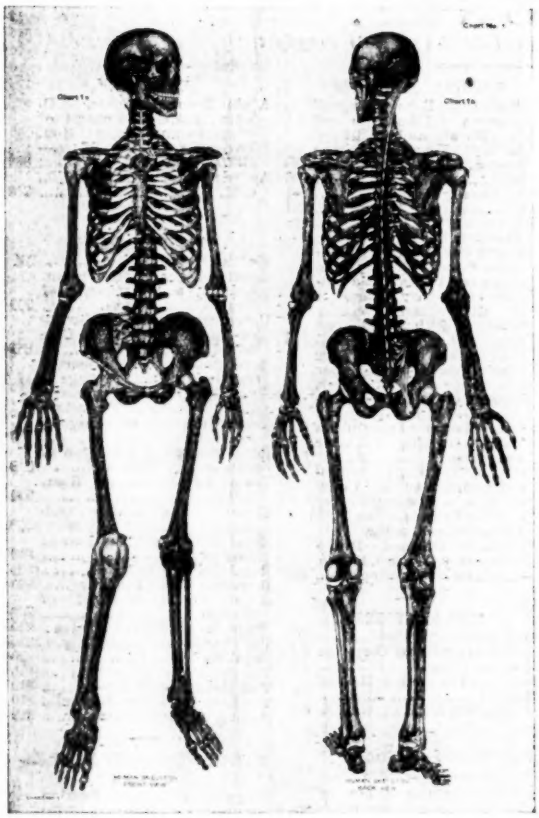
"The author writes with the conviction born of great experience, and his book, which loses nothing by being perhaps a little polemical, *may be recommended warmly to the attention of all medical men who have to treat acute or chronic malaria.*"—BRITISH MEDICAL JOURNAL.

MANUAL OF EMERGENCIES, Medical, Surgical, and Obstetric: Their Pathology, Diagnosis, and Treatment. By J. SNOWMAN, M.D. Demy 8vo. **15s.** net, post. 6d.

"..... The book is eminently practical, and, what is more, the practice advocated is based upon sound principles. ..... The book is adapted to the needs of the general practitioner, and it would be difficult to find one of greater use to the man who has recently qualified or who is holding a resident appointment. It is written in an easy and pleasant manner, and what especially commends itself to us is the absence of vagueness in the sections concerned with treatment. The author is not likely to fail one at the critical moment. ..... An excellent chapter deals with the practical side of serum sickness and the prevention of anaphylactic phenomena. The book is printed in good type, and there is a full index."—THE LANCET.

JOHN BALE, SONS & DANIELSSON, Ltd., 83-91, Great Titchfield Street, Oxford Street, London, W. 1.

A REAL CONTRIBUTION TO BRITISH MEDICAL SCIENCE



Size, 42 by 66 inches.

MESSRS. W. & A. K. JOHNSTON have secured the agency in this country for the

FROHSE LIFE SIZE ANATOMICAL CHARTS

As a result this series, constructed in America, becomes now available for the British Market, and

(1) the scale (life size or larger) upon which the charts are drawn;

(2) their scientific accuracy and wealth of detail;

(3) the beautiful appearance which careful lithography has produced;

(4) the durability and handiness with which they are mounted;

all substantiate the claim that they really are *a contribution to medical science* in this country.

THE PRICE IS REASONABLE:

£1 10s. net each plate, mounted singly on cotton, with plain rollers top and bottom;

or

£11 net the complete set, each plate mounted on cotton, in the handsome "Utility" Spring Roller Case.

If you are interested in this offer please write for full particulars to—

W. & A. K. JOHNSTON, LTD., 2, St. Andrew Square, Edinburgh

NOW READY.

ALL INVESTORS

should read the introductory article to the November, 1919, Quarterly Supplement (price 7d. post free) of

"THE 100 BEST INVESTMENTS"

entitled, "A PERIOD OF READJUSTMENT."

Which deals fully with the Investment position of to-day, with special reference to the problems raised by inflation and the Labour situation. The Quarterly Supplements contain up-to-date details of 100 specially selected securities, covering the whole available field of investment—from Government Loans to Ordinary Shares in Industrial Companies—particulars of further investments considered worthy of attention, a number of useful tables and hints of value to everyone concerned with the remunerative employment of capital.

THE ANNUAL VOLUME (Published in August) ... Price 1s.
QUARTERLY SUPPLEMENTS ..... Price 7d.
(Published February, May, and November)

Post free on receipt of remittance to the Publishers:

The British, Foreign and Colonial Corporation, Ltd., Investment Bankers,
57, BISHOPSGATE, LONDON, E.C. 2.

WANTED IMMEDIATELY,

Gray's Anatomy. Old Terminology.

State condition and price.
Medical, 69, Birmingham-road, West Bromwich.

Price 1s. With Illustrations.

APPLICATION OF TRUSSES

to HERNIÆ. Clinical Lecture delivered at King's College Hospital. By the late JOHN WOOD, F.R.S., Senior Surgeon to King's College Hospital. Reprinted from "Medical Examiner."
London: Matthews Brothers, 10, New Oxford-street, W.C.

STAMMERING, SPEECH DEFECTS, VOICE TRAINING.

BEHNKE METHOD. Est. 1882.

Carried on by Miss BEHNKE, 39, Earl's Court-square, S.W. 5.

"Pre eminent success in the education and treatment of stammering and other speech defects."—*The Times.*

"Thoroughly physiological principles."—*The Lancet.*

"The method is scientifically correct and perfectly effective."—*Guy's Hospital Gazette.*

From a Harley Street Specialist.—"The condition is to a great extent a psychical one, and the admirable results obtained by yourself and your parents have in my opinion been to a great extent due to your personal psychical influence over your subjects. You are at liberty use this expression of my opinion." *(This letter may be seen.)*

"Stammering: Cleft Palate Speech: Lisping." 1s. 3d. post free.
Of Miss BEHNKE, 39, Earl's Court-square, S.W. 5.

STAMMERING

W. J. KETLEY, "Tarrangower," Brondesbury, N.W.

(30 years colleague of late B. BEASLEY, Brampton Park, Huntingdon.)

Those interested in the subject should write for his book, which will be sent post free.

The Harveian Oration

ON

FORERUNNERS OF HARVEY IN ANTIQUITY.

Delivered before the Royal College of Physicians of London on St. Luke's Day (Oct. 18th),

BY RAYMOND CRAWFURD, M.A., M.D.OXON., F.R.C.P. LOND.,

PHYSICIAN AND LECTURER ON CLINICAL MEDICINE, KING'S COLLEGE HOSPITAL; CENSOR, ROYAL COLLEGE OF PHYSICIANS.

MR. PRESIDENT AND GENTLEMEN,—When, Sir, you entrusted to me the honourable duty of delivering this annual address, it seemed idle to suppose that I could add to the central theme, which has inspired this occasion now for more than 250 years, anything that had not been said by one or other of the long line of my predecessors in the post. But when I came to examine some of the outstanding accounts of the history of the discovery of the circulation I could not but feel that the fuller knowledge we now possess of the writings of the men of science of ancient days demanded a readjustment of traditional beliefs; we have claimed too much for the ardent anatomists of the Renaissance; we have conceded too little to the master minds of antiquity; in particular, I venture to think that the claims of Aristotle have not received their due meed of recognition.

THE WORK OF THE LATE DR. WILLIAM OGLE.

It will be consonant to the directions of Harvey's testament that I should testify to-day how great a part of our present-day knowledge of the scientific works of Aristotle is due to a late Fellow of this College, and that I should commemorate him by name. I refer, of course, to the late Dr. William Ogle. His translation of the treatise, "On the Parts of Animals," with commentary and copious annotation, were first published in 1882, and rewritten with diligent revision in 1911, when the hand of death was hard upon him. I had the privilege of discussing with him many points of his work, and I desire therefore that he, being dead, may yet speak to you through the medium of my lips. In 1897 this first essay was followed by a second dealing in similar manner with the conjoint treatises on Youth and Old Age, Life and Death, and on Respiration. Every page of these volumes is instinct with refined scholarship linked to a wide knowledge of biology. If there be any here who meditate a like venture into the by-ways of ancient science, I cannot do better than adopt the words of the great man we commemorate to-day, and exhort them to imitate this benefactor, and contribute their endeavours for the advancement of this society according to the example of this deceased benefactor. These volumes will survive as memorials of an age of British medicine in which Science and Literature walked hand in hand, side by side with a few more, of which it is meet that on this occasion I should name those monumental volumes, in which you, Mr. President, have enshrined the life-history of that great seat of medical learning, which bears the name of Harvey on its roll of honour.

HARVEY'S DEBT TO ARISTOTLE.

It has been alleged, in reproach of Harvey, that he withheld due recognition of the contributions of his immediate predecessors to the subject-matter of his discovery. It is no part of my thesis to represent Harvey as immune to human frailty: the blind eye he turned to Aselli's demonstration of the lacteals and their function forbids this. But in the matter of the circulation of the blood it is permissible to say that his indebtedness to any but Aristotle is almost negligible. The starting point and the central theme of the whole of Harvey's exposition is his conception of the heart as a muscular pump forcibly propelling the blood to the furthest limits of the vascular system, and this conception is built directly on Aristotle's doctrine of the primacy of the heart. Harvey's own quantitative estimates of the output of the ventricle at each systole supplied the single other factor that was needed to compel the conclusion that the same blood was passing time after time through the heart in the course of a circular movement. Others had set out detached fragments of the truth, but it is only when these are regarded with twentieth-century vision, wise after the event, that they become essential antecedents of the discovery. Harvey is never tired of insisting on his great debt to Aristotle in every branch of his researches; he quotes him far oftener than any other writer, and next to him Galen, largely disregarding the great anatomists of the Renaissance.

There is an interesting parallelism between Aristotle and Harvey in the circumstances of their lives; each was attached to the Court, and each enjoyed royal patronage of his work. Aristotle's father, Nicomachus, was Court physician to King Amyntas, father of Philip of Macedonia; it was probably from his father that Aristotle imbibed his taste for biology. Philip appointed him tutor to his son, Alexander the Great, and the friendship of tutor and pupil ended only at death It was Alexander who supplied the money that enabled Aristotle to make important collections of zoological specimens, and also secured him the great variety of animals that he dissected. The Macedonian kings were no undiscriminating patrons of medical science, for both Philip and Alexander on occasion summarily put to death Court physicians who were convicted by the event of ineffectual therapeutics. Harvey likewise, as is generally known, was attached to the Court of Charles I., and acted as mentor to his sons. It was the same king that supplied Harvey from the royal herd with the does which played so useful a part in his embryological investigations. Charles's interest in Harvey's work was direct and personal; he showed keen interest in Harvey's demonstration of the *punctum saliens*, the first rudiment of the fœtal heart. He was not satisfied till Harvey had repeated in his presence the experiments by which he proved the circulation of the blood, in a very different spirit from that of Louis Quatorze, who used them to afford a fresh sensation to the jaded minds of himself and his courtiers; and everyone knows the tale of King Charles inspecting and fingering the exposed heart of Harvey's patient, the son of the Lord Montgomery, and detecting its insensitiveness. For his enlightened patronage of science and much more so of art the Stuart monarch deserves the tribute of kindly reminiscence.

ARISTOTLE'S RESEARCHES.

Aristotle, whose life extended from 384–321 B.C., was the first worker to present anything in the nature of a coherent account of the vascular system, and of the purpose it was designed to serve in the animal economy. This alone was a remarkable achievement, when we reflect that prior to him, with insignificant exceptions, the whole corpus of anatomy consisted of crude observations of some of the principal organs, gleaned from the hasty inspection of the slaughtered bodies of sacrificial animals. In assessing Aristotle's knowledge of anatomy, we must not forget that the treatises specially devoted to anatomy are lost; what a treasure-trove for some future archæologist! Aristotle himself tells us that they were illustrated by drawings, and if these were drawn, as seems probable, from actual dissections, and were not mere fanciful representations, they will have antedated by some 1800 years any subsequent similar attempt. In the absence of these treatises we are dependent in the main on such anatomical details as can be derived from his treatises on "The History of Animals" and "The Parts of Animals."

What facilities were available to Aristotle for his researches? For human anatomy none, for Greek religious feeling was wholly repugnant to the desecration of the tabernacle in which the human soul found earthly tenement. All his dissections were carried out on the bodies of animals so varied in character that he may justly be designated the Father of Comparative Anatomy. In so far as he was an anatomist, Aristotle's feet were set on firm ground to the extent that the general plan of human and animal structure is interchangeable; in so far as he was a physiologist, his feet were still embedded in the shifting sands of speculation inherited from the early Greek physical philosophers. But even here his eyes were set towards the dawn, for he did at least test the abstract speculations of philosophers by the touchstone of anatomical structure. He saw that the endeavour to explain bodily

function without a knowledge of bodily structure was an idle quest, and it was in this faith that he laid well and true the foundations of descriptive anatomy, which awaited elevation to the dignity of a science at the hands of Vesalius in his *Fabrica Humani Corporis*. So with Aristotle hypothesis began to give place to understanding. Had he but realised the necessity of testing by means of experiment the inferences drawn from observation, as Galen did, he might have been acclaimed the Father of Physiology as well. Fidelity to the principles he professed saved him from the glaring and gratuitous fallacies such as the presence of air in the arteries, the origin of the veins in the liver, and the existence of pores in the septum, with which his successors, Erasistratus and Galen, obstructed the elucidation of the circulatory system, and therewith the birth of modern physiology.

A Primitive Physiological Axiom.

The problem that confronted Aristotle was a far wider one than that of which Harvey furnished the solution. The chapter of accidents that constitutes human existence was proof positive of some intimate relation between the life of a man and the blood that coursed in his vessels; when Cain shed Abel's blood upon the ground he established the axiom of primitive physiology that the blood is the life; it was manifest that warmth was inherent in the living human body, and that when warmth left the body life departed also; and that in some way or other life was dependent on the food we consume and the air we breathe. The task Aristotle set himself to accomplish was the blending of these elemental principles into a rational system of physiology, and one compatible with the anatomy of the vascular system as he knew it. Harvey was well aware that his great discovery touched only the fringe of this wider problem, for in his *De Motu Cordis* he made promise of further treatises on Nutrition and Respiration, neither of which was destined to see the light. Rightly, too, Harvey described his exposition as an anatomical exercise, and expressly stated that the question of the purpose of the circulation of the blood stood over for future consideration. The history of the discovery is like some great picture puzzle; Aristotle, with rare skill, figured out large but detached fragments of the picture, but left it incomplete; interested onlookers—Erasistratus, Galen, Stephanus, Columbus, Fabricius—picked up stray pieces, now one and now another, and laid them in their places; Harvey, by a splendid effort of genius and industry, mapped out the central theme of the puzzle, thereby supplying the key to the completion of the pattern; it was left to Aselli, who discovered the lacteals and so guided Pecquet to the discovery of the thoracic duct, and to the long line of physiologists, mainly British, who worked out in detail the physiology of respiration, to fill in the uncompleted picture.

Aristotle's Knowledge of the Structure of the Heart.

Some outline sketch of the knowledge of the anatomy of the heart and blood-vessels, derived by Aristotle from his dissections, is a necessary prelude to any attempt to appraise his value as a physiologist. But for the omission of the valves, Aristotle's description of the structure of the heart is reasonably correct. He describes the membrane around the heart, which we call the pericardium, and states that the mammalian heart has three chambers. There can be little doubt that he indicates the right and left ventricles and the left auricle, for such details as he gives harmonise with no other identification. This is the view expressed by Harvey in his *Praelectiones*, but in the *De Motu Cordis*, following Columbus and Cesalpinus, he puts forward the suggestion that Aristotle may have regarded the left ventricle as divided into two parts by the mitral valve. Right down to Harvey's time it was customary to speak of the ventricles only as "the heart"; the auricles were regarded merely as convenient ante-chambers. Aristotle, however, seems to have regarded the left auricle as part and parcel of the heart. On the other hand, he looked upon the right auricle as merely the meeting place of the two venæ cavæ, and termed the three together the "Great Vessel." His conception of the essential continuity of the three parts of the great vessel will be best understood by opening the thorax of an asphyxiated animal, when the right auricle and the two venæ cavæ will be seen to stand out replete and turgid with blood in contrast to the rest of the heart and vessels. Aristotle calls the left ventricle the middle chamber, and so, positionally, it is, lying between the right ventricle in front and the left auricle behind. He says that the great vessel is attached to the largest chamber—that is to say, to the right ventricle—and the aorta to the middle chamber or left ventricle. Again, he says that all these chambers are connected with passages leading in the direction of the lung, but that all these communications are indistinctly discernible by reason of their smallness, except one. This last is, of course, the pulmonary artery, and the two others the pulmonary veins and ductus arteriosus, though the latter is not functional normally for more than a few days after birth. Again, he says that the right cavity contains more blood and less pure than the middle and left, and this would be so in the case of a strangled animal, a mode of killing that Aristotle recommends for animals that are to be dissected. Galen scoffs at Aristotle's assertion that the mammalian heart has three chambers; he himself always describes two ventricles and assigns a very subordinate rôle to the two auricles. In the revival of anatomy, however, Aristotle's view triumphed over that of Galen, and we find anatomist after anatomist mistaking Aristotle's meaning and insisting on the existence of a third ventricle, in verbal agreement with Aristotle. To effect this it was necessary to conceive the ventricular septum to be a porous spongy structure, comparable to a ventricle, formed for the elaboration of the blood in its supposed passage from the right to the left side of the heart. This was the third ventricle of Mondino, Manfredi, Leonardo da Vinci, and others, which only disappeared from text-books of anatomy when Vesalius, following, as some will have it, the lead of Servetus, boldly declared that the septum was solid and its porosity a myth.

Aristotle felt that some explanation was necessary of the thickness of the walls of the heart, for he had no idea of the nature of muscular contraction and the energy produced in the process; he had no doubt that its purpose was to protect the innate heat which, we shall see, he conceived to reside in the heart.

The Circulation of the Blood.

Aristotle says that the chief blood-vessels are two in number, because every animal is bilateral; each arises from the heart, and all other vessels are branches of these, and carry nutritive blood to every part of the body. These two chief vessels are the great vessels, already described, which is the source of all the veins, and the aorta which is the source of all the arteries. Aristotle appears to be the first to restrict the name "aorta" to this vessel, which Diocles had called the "thick artery." Aristotle held that the blood, when endued with heat from the heart, was carried by both arteries and veins from the heart, not propelled, however, by any output of cardiac energy, to do its work in the distant parts of the body. In essence, the discovery of the circulation of the blood by Harvey consisted of a modification of this idea, whereby the blood left the heart by the arteries and returned to it by the veins.

Though Aristotle gives no specific names to either pulmonary artery or pulmonary vein, he describes them both; the former he regards as the great vessel continued back through the right ventricle, and the latter as the aorta continued back through the left ventricle. This conception is the necessary consequence of his assertion that the chief blood-vessels are two, and that all others are branches of these. It is also a reason why he gives no names to so many of the vessels he describes, because he considers them merely branches of the two to which he has assigned names; we can only identify them, as a rule, by the organ to which he accredits them. One may accurately liken the Aristotelian heart to two Higginson's syringes, with their bulbs in intimate apposition, side by side. The long tube of the one is the great vessel and its short tube the pulmonary artery; the long tube of the other is the aorta and the short tube the pulmonary vein. Between the two collateral systems there exists no communication whatever.

In his *De Partibus Animalium*, Aristotle roughly sketches the superior vena cava as passing up towards the brain, and terminating in branches in its membranes. He regards it merely as an upward extension of the great vessel. But in the *Historia Animalium* he gives a much fuller, and reasonably correct, description of its innominate and jugular tributaries. Similarly he describes the aorta as terminating in its upward extension in branches supplying the membranes of the brain. Though the whole of the

anatomy of the vascular system as given by Aristotle is full of interest, despite its inaccuracies, it is beside the present purpose to describe the branches he assigns to each of his two chief vessels. It is necessary, however, to give a thought to the breach of continuity which he leaves between the pulmonary arterioles and venules in the lung and the systemic arterioles and venules in the rest of the body, for until these gaps were bridged no demonstration of the circular movement of the blood was possible. Harvey, indeed, did not demonstrate the circulation, for he was in his grave when the movement of the blood through the capillaries was first made visible to human eyes. What he did was to establish by the strongest experimental evidence the certainty of the movement of the blood in a circle.

The Germ of the Modern Doctrine of Respiration.

Aristotle's description of the anatomical distribution of artery, vein, and bronchus in the lung not only bears witness to the meticulous care of his dissection, but implicitly it formulates the germ of the modern doctrine of respiration, in so far as the air is said to reach the blood through the unbroken walls of blood passages and air passages. "Canals," he says, "lead from the heart into the lung and branch off, just as the windpipe does, running all over the lung parallel with the passages from the windpipe. The canals from the heart are uppermost; there is no actual coalescence of the passages, but by their close contact they receive the air breathed and pass it on to the heart; and one of the passages conveys it to the right chamber of the heart, and the other to the left." The admission of air from the lung to each side of the heart by way of both pulmonary artery and pulmonary veins is a necessary consequence of the complete separation of the two sides of the Aristotelian vascular system. Aristotle has no use for this inspired air beyond the limits of the heart, and returns it to the lung by the self-same channels of entry as soon as it has done its work in the heart. Erasistratus and Galen, however, both retained some part of the air for further use in the body. To appreciate the pulmonary physiology of the ancients it is important to bear in mind that they thought and wrote of the lung as single, if bipartite; not as we do, as double.

As in the pulmonary so in the systemic system. Aristotle suggests no communication, direct or indirect, between arteries and veins; he does not even postulate distal anastomoses between them, as his immediate successors do; yet he does vaguely foreshadow the existence of capillary vessels, which were not observed and described till 2000 years later by Malpighi. "As the blood-vessels advance," he says, "they become gradually smaller and smaller, until at last their tubes are too fine to admit the blood." And again: "The smallest vessels are converted actually into flesh, though potentially they are no whit less vessels than before. This explains why, so long as the flesh of an animal is in its integrity, blood will flow from any part whatsoever that is cut, though no vessel, however small, be visible in it. Yet there can be no blood unless there be a blood-vessel."

The Vital Principle in the Heart.

For reasons that seemed good to him, and which, viewed by the standard of the knowledge of his time, were by no means unreasonable, Aristotle located the vital principle in the heart. By it the heat, constantly generated in the heart from combustion of food carried to it in the blood, is so vitalised as to afford nutrition and functional activity to the body. Without heat all the functions of the body are in abeyance, and life is impossible. He traces the origin of the blood to the fluid portion of the food absorbed by the blood-vessels from the intestine through invisible pores; the fluid passes in the form of an ichor or plasma to the heart. The route by which it passes is the mesenteric vessels, the arteries conveying it to the aorta and left side of the heart, and the veins to the right side of the heart by way of the portal vein and inferior vena cava.

Just as the absence of any communication, direct or indirect, between the two sides of the Aristotelian heart necessitated the admission of air to both side by pulmonary artery and veins alike, so now food ichor is admitted to both sides of the heart also. The venous channels clearly are the mesenteric tributaries of the portal vein, for Aristotle describes them as spread over the surface of stomach and intestine, like the roots of a plant, a life-like picture of the portal tributaries that will command itself to every anatomist. The hepatic vein he regards as a continuation of the portal vein, for he speaks of a short and wide branch of the great vessel, or vena cava, that runs through the liver. Under the heating influence of the heart the ichor is converted into blood, which is the material from which the whole body is made. This same heat induces expansion of the blood in the heart and lifts up its muscular containing wall, and so excites its pulsation. This elaboration of heat within the heart is not only the cause of the heart beat, but is also the cause of the respiratory movements, for heat derived from the heart causes the lung, and with it the thorax, to expand, so that the air rushes in and reduces the heat, whereupon lung and thorax collapse and expire the air. Such is the mechanism of respiration, and its purpose is to temper the heat of the heart, which threatens ever to become excessive; thus is equilibrium of body temperature automatically regulated. The food is the means of maintaining the heat of the heart and the body, and the air inspired is the means of keeping it within physiological limits. Diastole is the expansion of the heart caused by the combustion of food ichor within it, and systole is the subsidence resulting from condensation of the heated blood by the inspiration of cool air. Thus pulsation of the heart is a mere by-product of metabolic changes occurring within its cavities. Diastole and systole do but represent the alternating interplay of thermogenesis and thermolysis, and rhythm is the expression of the regularity of these phenomena. Pulsation is maintained continuously throughout life, because the influx of expansible food ichor into the heart and the ingress of cool air are also continuous.

Diastole an Essential Prelude of Systole.

To modern ears, wise with the wisdom of knowledge revealed, such physiology may seem archaic balderdash; for all that Harvey, to the end of his days, deviated no more than a hair's breath from the standpoint of Aristotle. Like him he conceived diastole to be an essential prelude of systole. At the entrance of the vena cava into the right auricle, just, in fact, where Keith and Flack located the sinus node, Harvey conceived a sudden expansion of the inflowing blood to take place, under the influence of its own innate heat, for late in life he transferred the seat of the innate heat from the heart to the blood itself. In his view this sudden expansion of the blood excited expansion of the right auricle in diastole, and diastole was the efficient stimulus of systole, which was no more and no less than a simple muscular contraction. To Aristotle, who knew nothing of the nature of muscular contraction, systole was, as we have seen, a passive subsidence due to condensation of hot blood in the heart by the cool air inspired; Harvey rejected the last vestige of passivity and established systole as the motor power activating the circulation. To Aristotle the heat of the blood in the heart, alternately increased by consumption of food ichor and decreased by entry of cool inspired air, is the efficient cause of pulsation; to Harvey the innate heat of the blood just before it enters the heart. It is strange that Harvey, who was well aware that the excised heart may maintain its pulsation, and who demonstrated on the exposed heart of the snake the effect of compression of the vena cava in emptying the still pulsating heart, should have adhered to this idea of expansion of the blood, which his own experiments negatived. All men have blind spots in their field of mental vision, and the reasonable remedy would seem to be that research workers should hunt in pairs or in packs.

Following Aristotle, Harvey at first conceived that the purpose of the passage of blood through the lungs is to reduce its heat. Aristotle effected this reduction of heat within the heart; he knew that air was essential to the maintenance of a flame, and he conceived that it acted by cooling the flame, so that it did not burn itself out precipitately. Similarly the inspired air hindered the innate heat of the heart from causing its own destruction. Galen accepted Aristotle's teaching thus far, but in addition to its cooling function held that some of the air inspired is retained in the blood and has important functions to perform in the general economy of the body. Harvey, however, reverted to the simpler teaching of Aristotle, and

thereby moved further away from the modern doctrine of respiration. Late in life Harvey rejected the cooling theory as well, and frankly confessed himself at a loss to explain the purpose of respiration. It remained for Borelli, Boyle, Hooke, Lower, Mayow, Black, Priestley, and Lavoisier by successive stages to attain this goal. I commend this list of names to those who have no pride in British achievements in scientific research.

It is matter for surprise that so keenly observant a mind as that of Aristotle should have overlooked the different rate of the pulse-beat and respiration, which cuts at the root of his doctrine of the synchronous expansion of heart and lung. On that point his treatise on "Respiration" is silent; but we cannot presume that he tacitly conceived a greater degree or a fuller supply of heat to be necessary to cause expansion of the lung than to cause expansion of the heart, for he makes it clear that in his view subsidence of the heart at each systole depends on the inrush of cool air during inspiration.

To Aristotle, then, the heart is a bellows, not a pump, and diastole is the active phase, not systole. Right down to Harvey, suction not propulsion was regarded as the essential activity of the heart. This necessarily precluded any satisfactory explanation of the arterial pulse, which Aristotle referred to the movements of the blood in the heart transmitted to the blood in the arteries, diastole of the heart synchronising with diastole of artery. If we would understand his physiology we must purge from our minds any conception of the heart as a muscular organ propelling the blood; we must think of it rather as a laboratory, introduced into the vascular system, within which food and air play their respective parts in maintaining the vital heat in such a state of stable equilibrium as is most suitable to the requirements of the body.

The Primacy of the Heart.

Such, then, were the foundations in anatomy and physiology on which rested the Aristotelian doctrine of the primacy of the heart. Its dominating position, too, in the centre and forefront of the body seemed to mark it out as its acropolis, and his observations of the developing embryo assured him that it was the first organ to be formed, preceding even the appearance of the blood. In his earlier work Harvey followed obediently the lead of Aristotle, but in his later years transferred both the primacy and the seat of innate heat from the heart to the blood. This doctrine had found favour in Greece before the time of Aristotle, but he himself expressly repudiates it, for his observations seemed to show beyond question that the heart was the first part to live and the last to die. Indications are not wanting that even in his early years Harvey halted between the heart and the blood, and it was Aristotle's dictum that inclined him to declare for the heart; but his bosom's lord sat lightly in his throne, till his own researches in embryology and his own observations of the dying heart led to its ultimate dethronement in favour of the blood. Harvey fancied that he had perceived a residual flicker of movement in the blood after the substance of the heart was dead; had he referred this movement to its real cause he would never have strayed from the Aristotelian fold.

The primacy of the heart among the organs of the body was of first importance as the starting point for a rational explanation of the circulatory system, for it established the position of the heart as the source of the blood-vessels. Before Aristotle the Hippocratic School had asserted their origin in the head, and Galen's first master, Pelops, sustained this belief. It was a sad falling away from the standpoint of Aristotle when Erasistratus and Galen referred the origin of the veins to the liver.

The Vascular System as an Irrigation Supply.

Aristotle had no notion of the movement of the blood in a circle, though he believed that it supplied nutriment to every part of the body. Following the lead of Plato, he looked on the vascular system as an irrigation supply, and compared it to "water-courses in gardens, so constructed as to distribute water from one single source or fount into numerous channels, which divide and subdivide, so as to convey it to all parts." He conceived the main flow of blood to be from heart to blood-vessels, and so to all parts of the body, where much of it was used up; but he admits flow in the opposite direction also, for he says that the heart received blood both from the great vessel and the aorta; what was used up at the far end of the blood-vessels in the needs of the body was restored to the heart by the food ichor conveyed to it. The continuous supply of ichor, derived from the intestine, to the heart would seem to demand a continuous current in the mesenteric veins and arteries towards the heart; on the other hand, the needs of nutrition postulated a current in the opposite direction from the heart towards the stomach and intestine. So keen a mind as Aristotle's must have envisaged this contradiction, and one can only imagine that he conceived something in the nature of a general diffusion to take place. Galen faced the difficulty squarely, and cited as a parallel occurrence the flow of bile in opposite directions in the cystic duct. Harvey, who still, however, in spite of Aselli's demonstration of the lacteals, believed in absorption of chyle by the portal radicles, triumphantly removed the difficulty by showing that the blood left the heart by one set of vessels and returned to it by the other.

At times Aristotle lends himself to the belief of an alternating flux and reflux in the blood-vessels, in accordance with the teaching of Empedocles, who, two centuries before him, had laid it down that "it is the nature of blood to move backwards and forwards." Aristotle compares the blood flow to the current in the Strait of Euripus, which sets once a day in each direction; the ebb and flow of the tide is translated from the macrocosm to the human microcosm. He gives us no idea of what he conceived to be the motive force, but was satisfied with the fact that such a to-and-fro current did demonstrably occur in nature within his own experience. These more extensive movements of the blood must not be confounded with the local movements induced by diastole of the heart and its ensuing systole; they are smaller movements, as it were, within these larger movements.

To us who know that, under the impetus of the ventricular systole, blood flows from where the pressure is high to where the pressure is low, the conception may seem puerile; but in the absence of that knowledge and in the presence of spontaneous movements in the arteries, which seemed for all the world like the progress of a tidal wave, it was not unnatural to conclude that the movement was of the same nature as the ebb and flow of the tide. In our evaluation of the scientific ideas of antiquity we must beware of confusing ignorance—which is the common lot of mortals—with stupidity, which Nature, in regard for human progress, has wisely distributed on a basis of selection. It is as difficult to assume the mental attitude of 2000 years ago as it is easy to relapse into one that is 20 years behind the times. To men who had been accustomed to regard the tissues as lapping leisurely at the nutrient blood the very idea of the rapid movement of the blood in a circle would have seemed as irrational as the antics of a puppy dog in hot pursuit of its own tail round a flower-bed. Just as it was incomprehensible to Aristotle, so it was unintelligible to Harvey, even when he had established its existence. So imbued was Harvey's mind with the thoughts of his predecessors in antiquity that the very rapidity of the circulation convinced him that its purpose could not be the nourishment of the tissues.

Aristotle's Belief in Two Kinds of Blood.

Aristotle was aware that the blood differed on the two sides of the vascular system, but he had no notion of the cause of the difference; naturally, therefore, he concluded that there were two kinds of blood. He describes the blood on the right side as more abundant, less pure, and denser than on the left. No doubt he derived this belief from finding the venous side of the circulation charged with dark blood in the bodies of the strangled animals that he dissected. His belief in the complete separation of the two sides of the vascular system precluded any idea of the difference being due to the action of inspired air on the blood, for it compelled him to admit air to both sides of the heart by pulmonary artery and vein alike. The cause of the change was not known till after Harvey's time; indeed, the difference of the blood on the two sides of the circulation was used as an argument against Harvey's doctrine of a rapid circular movement, for it seemed incredible that the same blood should be constantly changing from one state to the other.

THE TEACHING OF ERASISTRATUS.

Passing from Aristotle to Erasistratus, we quit the clear crisp air of Hellas, that lent to Hellenic thought full measure of its own clarity, for the heavy exotic atmosphere of Lower Egypt, in which men seemed to see the truth as it were through a glass darkly.

In Erasistratus is focused the contribution of the great Alexandrian school to the knowledge of the vascular system. His lifetime is vaguely assigned to the 85 years between 330 and 245 B.C. Born on the island of Ceos, it is uncertain where he received his medical education, but probably most of his anatomical work was carried out at Alexandria, for there alone existed facilities for the dissection of the human subject such as his knowledge attests; there he must have imbibed to the full the scientific teaching of Aristotle. Celsus and Tertullian have branded him as a dissector of living criminals, and Galen has fallen under the same imputation, though his dissections were almost, if not entirely, confined to animals. Even in Alexandria Greek religious sentiment retained its repugnance to human anatomy, so that the practice soon died out, even in the place of its first flourishing. If Erasistratus had ever dissected a criminal alive, it is difficult to believe that he would have described the arteries as containing only air.

The only real contribution of Erasistratus to the anatomy of the vascular system is his description of the auriculoventricular valves of the heart and chordæ tendineæ; the semilunar valves had been already described in the "De Corde" of the Hippocratic Corpus. Erasistratus also pointed out the mode of closure of the valves and its purpose, but so wedded was he to belief in flux and reflux of the blood stream that he is constantly compelled to ignore their competence. Unlike Aristotle, he believed the whole of the food to be absorbed from the intestine by the portal vein, which carried it to the liver for conversion into blood. He stood on the brink of a great discovery, for he described the lacteals in sucking kids but believed them to be mesenteric arteries.

Erasistratus's Vascular Anatomy.

It is wellnigh impossible to gather together a complete account of the teaching of Erasistratus, for knowledge of his work is derived almost entirely from excerpts of Galen and other authors, so that lacunæ are inevitable, but clearly he regarded the liver as the starting point of the blood stream. From the liver the blood pursued in the main the route of the venæ cavæ and their tributaries to the most distant parts of the body, but in its course a portion passed on into the right ventricle, and thence, by the harmonious coöperation of tricuspid and pulmonary valves, was guided to the lung. Flux and reflux in venæ cavæ and their branches, flux and reflux between right ventricle and lung—that was his conception of the distribution of the blood, a distribution, too, confined exclusively to the veins. Side by side with this sanguineous circulation in the right side of the heart and veins is a circulation of spiritualised air or pneuma in the left side of the heart and arteries. The mistake of Erasistratus in making the arteries carriers only of air—a mistake which he is said to have inherited from Praxagoras of Cos—was the outcome of a correct observation incorrectly interpreted. Just as Aristotle had been impressed by the fullness of the veins after death by asphyxia, so Erasistratus was impressed by the emptiness of the arteries, and he seemed to find confirmation of his belief in the close anatomical relationship of the bronchi and branches of the pulmonary vein, from which he inferred that they were in actual open communication. Erasistratus discarded the Aristotelian belief in the cooling function of respiration, and propagated one more in harmony with modern physiology, that the inspired air is, in part, retained and has important duties to perform in the most distant parts of the body. This would have been a notable advance but for his absurd separation of the blood and the air in veins and arteries respectively. Most of the air, or pneuma, drawn in in inspiration through the trachea passes from the extremities of the bronchi in the lungs by direct communications into the pulmonary veins, whence it reaches the left ventricle, and is distributed by the aorta and its branches, the arteries or air-carriers, to all parts of the body. The simple primitive pneuma (πνεῦμα ζωτικόν, or vital spirit) animates all vital processes throughout the body, but in the process of respiration it undergoes also in the left ventricle a peculiar refining, with formation of soul pneuma (πνεῦμα ψυχικόν, or animal spirit), which is carried in the arteries to the brain, and there, by the agency of the emergent nerves, produces motion and sensation. To Erasistratus the purpose of respiration is the spiritualising of the pneuma and its carriage into the arteries; the pulsation of the heart is due to expansion of the pneuma in presence of the innate heat of the heart, on the principle of an internal combustion engine. Like Aristotle, he had failed to detect the different rate of respiration and the pulse. The surplus air is returned from the lung and discharged by the mouth and nostrils. Erasistratus attributed different properties to blood and pneuma; blood is the prime constituent of the organs and sustains the simple vegetative processes of living bodies, but all the higher functions depend on the activity of pneuma.

Conflicting Opinions.

So much for the vascular anatomy of Erasistratus, but Erasistratus the anatomist finds himself in conflict with Erasistratus the surgeon, whose experience has taught him that when an artery is severed blood flows from the wounded artery. To meet this discrepancy the anatomy of the body calls for revision, so the terminations of the arteries are made to anastomose with the terminations of the veins by little communications which, under normal conditions are closed, but in the case of a wound of the artery become open. This he attributes to the escape of pneuma or air from the arteries, whereupon, in abhorrence of a vacuum, blood passes over from veins to arteries and streams out of the wound. His suggestion of anastomoses between veins and arteries is not prompted by observation or experiment, but by the necessity of bolstering up an indefensible theory. It is matter for regret that the exotic term "pneuma" should have been adopted into English diction, for it represents primarily simply the inspired air. Viewed thus the physiology of Erasistratus is simplicity itself; the air we breathe passes directly from the bronchi by the pulmonary veins into the left ventricle; there it undergoes some subtle refinement before it is distributed by the arteries to all parts of the body, enduing them with function, just as the blood affords them life and the faculty of growth.

GALEN AS A MEDICAL ENCYCLOPÆDIST.

After Erasistratus, Galen. His anatomy was based almost exclusively on dissection of animals, living or dead. On rare occasions he had the good fortune of a hasty inspection of a human body, some dead highwayman, some victim of the arena, some decomposing body washed up on the river bank. In Alexandria the human skeleton was set up for demonstration, and disused burial grounds yielded up their bones to him, as they did to Vesalius. Like Harvey, Galen had on one occasion the opportunity of watching the movements of the heart in a living boy, who as the result of an accident had his heart exposed to view.

We shall understand Galen best if we think of him as a medical encyclopædist bent on gathering up into one all-embracing system all the lore of all his scientific predecessors: the Hippocratic school, Aristotle, and Erasistratus meet and blend in him. He likened the portal vein and its tributaries to the roots of a tree, of which the inferior vena cava is the trunk and the systemic veins the branches. Just as the roots of a plant attract nourishment from the soil, so the roots of the portal vein attract food chyme from the intestine and stomach and conduct it to the liver, whence it passes to the right side of the heart. But in the liver the chyme is transformed into blood and endowed with natural spirit (πνεῦμα φυσικόν); this low-grade blood is only adequate for *nutrition*, and the veins are the channels by which it reaches its destination. The blood from the liver, as soon as it reaches the inferior vena cava, divides into an upward and a downward stream. The latter passes by the descending part of the cava and its branches to the lower part of the body; the former passes up to the right auricle and there divides into two, part continuing its upward course by the superior vena cava to the upper part of the body and head and part passing into the right ventricle. Here, under the influence of the innate heat of the heart, some purification is effected, and the fumes or sooty excreta pass through the pulmonary valves to the lung and are voided in expiration. From the right ventricle a stream passes by way of the pulmonary

artery to the lung, giving nutrition to it, a very small amount finding its way from pulmonary arterioles to pulmonary venules by way of their mutual anastomoses. Yet another moiety filters by innumerable invisible pores through the muscular septum from the right ventricle to the left; these pores are seen with difficulty in the dead body, because the heart muscle, being then cold, is stiff and hard; still, reason assures us that they are there. In the left ventricle this blood is mixed with air drawn in from the lung by the active traction of ventricular diastole by way of the pulmonary vein, and undergoes concoction under the influence of the innate heat and engenders vital spirit (πνεῦμα ζωτικόν).

The heat is kept from becoming excessive by the cooling influence of the air drawn into the ventricle; this, indeed, is the main purpose of respiration, and when the air has effected this it is returned again to the lung. This higher-grade blood charged with vital spirit undergoes an ebb and flow, in part by way of the pulmonary vein between the left ventricle and the lung, the imperfect closure of the mitral valve permitting this and also allowing the escape of waste fumes, and in part by way of the systemic arteries between the left ventricle and the most distant parts of the body, endowing them with *function*. Within the brain it engenders animal spirit (πνεῦμα ψυχικόν = breath of the soul): this subtle essence, distilled as it were from the blood, is carried outward from the brain by the nerves, initiates motion and sensation, and subserves the *highest functions* of the organism.

An Anatomical Error.

Such in outline is the ground plan of Galen's physiology of the vascular system; his belief in the existence of permeable foramina in the septum of the heart, borrowed seemingly from the post-Hippocratic school, placed one more obstacle in the way of the elucidation of the circulation. The belief was not a mere gratuitous figment in an age when dissection was almost exclusively confined to the lower animals. The heart of the amphibious frog has but one ventricle, and the reptiles afford numerous instances of incomplete division, the complete septum being constantly found not till we reach the bird level. Again, patent foramen ovale is constant in the human fœtus and not rare throughout life, while minute defects, such as to permit the passage of a bristle, are common. Such conditions as these may well have lent a semblance of likelihood to a false anatomical preconception.

As against this capital anatomical error we must set to the credit of Galen his reiterated assertion of the existence of anastomoses between the terminal ramifications of arteries and veins, both systemic and pulmonary. The bridging of these gaps, speculatively at least, was a condition precedent to the discovery of the circulation. Erasistratus had stood sponsor for potential anastomoses, those of Galen are actual, and he claimed to have proved their existence experimentally, by showing that it was possible to drain all the blood out of the body by a wound in a single artery. He explains exactly how the interchange of arterial and venous blood takes place, diastole of the artery drawing blood out of the vein and systole letting it back.

A Step towards the Discovery of Pulmonary Circulation.

As in the systemic system, so in the pulmonary, Galen asserts the existence of anastomoses, by which some small amount of the blood brought by the pulmonary artery to the lung finds its way directly into the pulmonary veins and so into the left ventricle. He was confirmed in his belief by the consideration that the pulmonary artery is far larger than would be necessary if its purpose were merely to give nourishment to the lung. The mechanism of transference he explains thus:—

> When the thorax contracts the pulmonary veins within the lung are driven in and compressed on every side, and force out very speedily the inspired air that is in them, and at the same time take up a certain amount of blood by these tiny communications. Now this could never happen were the blood able to flow back into the heart through the orifice of the pulmonary artery. But its return through this great opening being prevented, a certain portion of it distils into the pulmonary veins by the minute orifices mentioned.

Thus Galen, building on anatomical foundations laid by Aristotle, made one step onward towards the discovery of the pulmonary circulation, though he shows no sign whatever of understanding its fundamental importance. In effecting this pulmonary transit of a small quantity of blood, Galen makes its clear that the motive power is derived from thoracic compression of the pulmonary vessels, and not from the muscle of the right ventricle; indeed, he decides definitely that the heart wall is not muscular.

Galen is well-nigh as vague as Aristotle as to the source from which the blood derives its motion; sometimes he asserts the movement and seems to regard explanation as superfluous or impossible; at another time he seems to regard alternating diastole and systole as the efficient cause of flux and reflux, not only locally, but throughout the vascular system. Inconsistencies are frequent in Galen's physiology, because he does not hesitate to manipulate it so as to establish a thesis; but we shall not condemn him overmuch if we bear in mind how few years separated him from the time when the whole of physiology was armchair speculation.

If Galen had not decided that the heart was not muscular he might well be acclaimed the first exponent of the myogenic theory of its activity, for he locates the stimulus to activity in the heart itself; he attributes to it an inherent tendency to pulsate (δύναμις σφυγμική), which is equivalent to saying that the heart pulsates because it pulsates. It was impossible for him to refer the cause of the heart beat to the blood, as Aristotle had done, for he knew that rhythmic activity may persist for a while in the excised mammalian heart; he was driven, therefore, to make it inherent in the heart. It cannot be said that even now we are provided with a much more satisfying answer, though splendid additions have been made in recent years to our knowledge of the site of origin and the route of propagation of the impulse through the heart, mainly by the work of Gaskell, Kent, Keith, and Flack, who have worthily maintained the pre-eminence won by Harvey for this country in the domain of the physiology of the vascular system. In recognising the primacy of the right auricle, as the first part to live and the last part to die, they were following in the footsteps of Galen, though for the auricles generally Galen had scant respect, regarding them as introduced into the vascular system as a provision against the too violent strain of ventricular diastole on the veins that open into them. Galen also knew that contact with cold water tended to arrest pulsation.

Galen performed just the same experiment as Harvey in opening the pericardium and observing the movements of the heart, but failed entirely to draw the same conclusions as to the orderly sequence of movements in the various chambers of the heart; he did not even perceive that auricles, like ventricles, have both a systole and a diastole.

Galen proved by a vivisection experiment that Aristotle was right in saying that the arteries contained blood and not air. He placed two ligatures upon an artery and divided the vessel between them, when it was found to contain only blood; corroboration was afforded by plunging a cannula into the left ventricle, when blood flowed out instantaneously without any escape of air.

A Good Story.

Galen tells a delightful story of such a demonstration of the presence of blood in the aorta, which shows incidentally that the medical student has remained true to type for some 1800 years. Some ignorant anatomist repeatedly promised to demonstrate that the aorta contained no blood, but never got beyond promises, though Galen's students brought him animals and begged him to show them; the man, however, took refuge in demanding payment for the task. Thereupon the young men put down between them some 1000 denarii, for him to pocket if he was successful, but this only produced a further crop of excuses. At last, however, their persistence prevailed, and he summoned up courage to take a scalpel and open the left side of the chest, where he fancied he would get the best view of the aorta, but he exposed his ignorance of anatomy by cutting down upon a bone. Then the young men, who had tabled the stakes, jeered at him, and undertook to carry out his demonstration for him. Opening the mediastinum, as they had seen Galen do, without wounding any of the vessels, they quickly passed two ligatures round the aorta, one near its origin from the heart and the other close to where it meets the spine; then they confidently promised that when the animal was dead, they would show that the part between the two ligatures contained no blood. But lo! and behold! when it was opened, there was blood in the vessel.

An Address
ON
HYSTERIA
IN THE LIGHT OF THE EXPERIENCE OF WAR.

Delivered before the American Neurological Association at Atlantic City, June 17th, 1919,

BY ARTHUR F. HURST, M.A., M.D. OXON., F.R.C.P.,
LIEUTENANT-COLONEL, R.A.M.C.; PHYSICIAN AND NEUROLOGIST TO GUY'S HOSPITAL, LONDON.

MR. PRESIDENT AND GENTLEMEN,—The war afforded an opportunity of investigating hysteria in men such as had never occurred before. The lessons we have learnt can be applied to the elucidation of many of the problems presented by the hysteria of civil life. In my remarks this morning I shall attempt to explain the new conception of hysteria which I have been led to adopt as a result of three years of intensive study of the war neuroses.

I shall begin by proposing to you a new definition of hysteria.

Hysteria is a condition in which symptoms are present which have been produced by suggestion and are curable by psycho-therapy.

This definition differs from all others in not recognising an hysterical condition apart from the presence of definite hysterical symptoms. Charcot believed that hysteria manifested itself in two ways: by the symptoms which were obvious to the patient and about which he complained, and by physical and mental stigmata which were present before the obvious symptoms appeared, and which persisted after their removal.

PHYSICAL AND MENTAL STIGMATA AS ARTEFACTS.

A characteristic feature of the physical stigmata he described, the chief of which were certain forms of anæsthesia and narrow fields of vision, was that the patient never complained about them and did not, indeed, become aware of their existence until they had been demonstrated to him by the physician. Babinski showed that this was due to the fact that they did not exist until the physician found them, as they were actually produced by him unconsciously in the course of his examination. In a series of 100 consecutive cases of hysteria, which he examined in such a way that no suggestion could occur, neither anæsthesia nor a narrow field of vision was ever found.

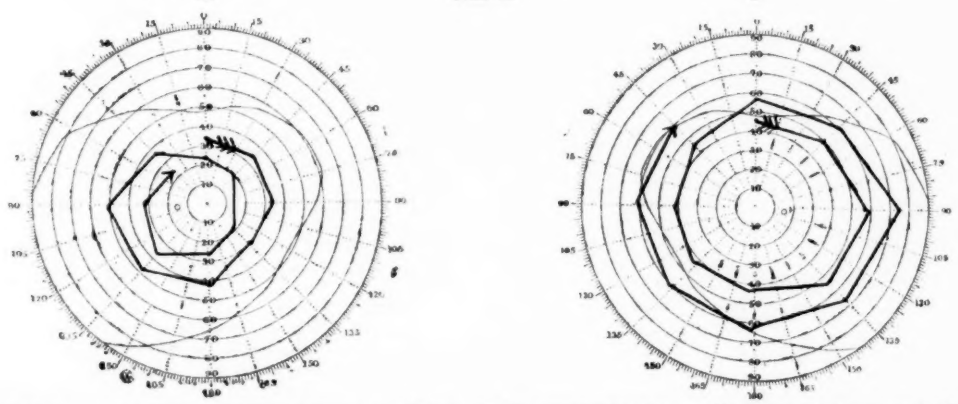
My investigations carried on during the past 12 years entirely confirm Babinski, and we have recently extended our observations still further. A spiral field of vision has often been described as even more characteristic of hysteria than the simple narrowed field described by Charcot, which Babinski proved was only the result of the suggestion involved in using a perimeter. When, after the first examination of the field was completed, second and third examinations were made without interruption, the field was found to become steadily smaller, this being due, it was supposed, to the abnormal fatigability in such cases. Major J. L. M. Symns and I[1] found, however, that it was simply due to the method commonly used, in which the white disc of the perimeter is brought from without inwards at each examination. When it was moved in the opposite direction an outward spiral instead of an inward spiral field was obtained, the field becoming steadily larger until it reached the normal instead of becoming steadily smaller. By varying the method used it was possible to obtain an inward spiral with one eye and an outward spiral with the other (Fig. 1), or an inward spiral followed by an outward spiral with the same eye.

Accurate measurements made with J. L. M. Symns proved also that the supposed pharyngeal anæsthesia of hysteria is a fallacy,[2] and that the percentage frequency of deficient, average, and increased sensibility is exactly the same in patients suffering from hysteria, and even from such hysterical symptoms as aphonia and mutism, as in normal individuals.

The areas of cutaneous anæsthesia which have been regarded as characteristic of hysteria were shown[3] to be simply those areas which an average layman would expect to be anæsthetic if he were paralysed, and which would therefore be likely to develop directly he is questioned on the subject and his cutaneous sensibility is investigated.

Having disposed of the physical stigmata of hysteria, it now becomes necessary to examine the mental stigmata. A study of the literature reveals a great diversity of opinion as to their nature. The stigma which is accepted by the largest number of writers, and which is the only one accepted by Babinski, is abnormal suggestibility. But our investigations have proved conclusively that, although abnormal suggestibility renders a man unusually prone to develop hysterical symptoms, there is no one who is so devoid of suggestibility that he may not develop them if the suggestive influence is sufficiently powerful. Whether a given individual will develop hysterical symptoms under given conditions depends upon the degree of his suggestibility and the strength of the suggestion. It is clear, therefore, that abnormal suggestibility is simply a predisposing factor, and is no more a part of hysteria than a tuberculous family history is a part of tuberculosis. Many cases of gross hysterical symptoms occurred in soldiers who had no family or personal history of neuroses, and who were perfectly fit until the moment that one of the exceptionally powerful exciting causes, such as occur comparatively rarely apart from war, suggested some hysterical symptom; and after its disappearance as a result of psycho-therapy the man was once more perfectly fit, and his subsequent history showed that he remained no more liable than any of his companions to develop new symptoms.

FIG. 1.



Spiral fields in case of hysterical mutism and tremor. (A) Left eye: without inward spiral field. (B) Right eye: within outward spiral field.

SUGGESTIBILITY OF THE NORMAL INDIVIDUAL.

The following experiments made with Major J. L. M. Symns and Dr. R. Gainsborough[4] show how unexpectedly suggestible the average normal individual is. We examined 28 men who were perfectly healthy and suffering from no kind of nervous disorder, but who were attending an aural out-patient department for deafness, which was either unilateral or more severe in one ear than the other. Both ears were lightly touched, sometimes by ourselves, sometimes

by others who did not know what we were investigating, and the men were then asked which side they felt more clearly. Eighteen replied at once that the ear in which the hearing was less impaired was more sensitive to touch than the other; the hysterical anæsthesia which had been suggested by this simple examination was so marked in one case that the man was seen a few minutes afterwards putting a pin through the lobe of his ear to amuse his companions. In 1859 Briquet stated that hysterical deafness is associated with anæsthesia of the external ear, and this has ever since been regarded as an almost constant phenomenon, which was supposed to help in the diagnosis of hysterical from organic deafness. The experiment just described throws light on the origin of this deeply rooted fallacy.

As soon as it is recognised that, although certain mental stigmata predispose to the development of hysteria, they are not themselves a part of hysteria, it becomes obvious that many cases of hysteria will be missed if it is only looked for in so-called hysterical individuals. When, on the other hand, it is remembered that there is nobody who may not develop hysteria if the provocation is sufficiently great, it must follow that hysteria is infinitely more widespread than has generally been supposed.

HYSTERIA FOLLOWING TERROR.

In the majority of cases very little difficulty is experienced in discovering the nature of the suggestion which gives rise to hysterical symptoms. The chief varieties seen in soldiers may be taken as examples, though each has a much wider application to the hysteria of civil life. In the first place there are the symptoms which follow the condition of fear. Extreme terror gives rise to certain very familiar physical symptoms, the individual becoming shaky, "paralysed with fear," and unable to speak—"his tongue cleaves to the roof of his mouth." Under ordinary conditions the cause of fear is momentary, and the physical results disappear in a few seconds. But during a heavy bombardment a man often remained terrified for hours together. If the tremor, inability to move the legs, and speechlessness, persisted all this time, it was natural that these symptoms of fear, which were not in any way hysterical, should so greatly impress the soldier's mind that the idea of a permanent condition of tremor, paraplegia, and mutism suggested itself to him, with the result that when the original emotion had disappeared its physical expression persisted as hysteria.

In the first two years of the war cases of this kind were given the unfortunate name of "shell shock" in the belief that they were organic in origin and due to actual concussion caused by the explosion of powerful shells. Consequently no attempt was made to cure them by psycho-therapy, and the treatment by rest and sympathy helped to perpetuate them; this unfortunate result was increased by the use of the words "shell shock," which gave the patient the idea that he was suffering from some new and terrible disease. When at last the true nature of the condition was recognised, it was found that psycho-therapy not only resulted in the immediate disappearance of the symptoms, when they were treated in the special advanced hospitals opened for the purpose by the British and French, and later by the Americans, but cases of two and three years' standing were also frequently cured at a single sitting in hospitals in England, such as Seale Hayne. Although this form of hysteria was not common in neurotic individuals, a large proportion of the cases treated within the first 48 hours recovered so completely that they were able to return to the fighting line and showed no tendency to relapse. A few of the cases which had persisted for many months before coming under treatment could not return to France, but such men were always able to go back to their old civil occupation and often had no underlying mental condition requiring further treatment, although in some cases the hysteria was associated with neurasthenia or psychasthenia, or both. Indeed, many patients at once lost such symptoms as headache, depression, insomnia, and nightmares, which had troubled them for months, or even years, directly the obvious physical symptoms, such as mutism or stammering, tremor, and paraplegia, were removed by explanation, persuasion, and re-education.

HYSTERIA FOLLOWING GASSING.

The second great group of hysterical symptoms in soldiers resulted from gassing. The irritation of the eyes, throat, and stomach caused conjunctivitis, laryngitis, and gastritis, the latter being due to the swallowing of saliva in which the gas was dissolved. The pain caused by the conjunctivitis induced the patient to refrain from opening his eyes with his levator palpebræ superioris; if, however, he tried to open them his attempt was frustrated by a reflex protective spasm of his orbicularis palpebrarum. Under ordinary conditions the conjunctivitis had improved sufficiently at the end of three weeks for the eyes to be opened without difficulty, but if the patient was led to fear for his vision on account of previous weakness of the eyes, the previous loss of one eye, as in two of our cases, or too prolonged treatment with local applications, bandages, dark spectacles, or eye-shades, the voluntary inhibition of the levator might be perpetuated as hysterical ptosis and the reflex spasm of the orbicularis as hysterical blepharospasm. As the uneducated layman associates the idea of blindness with inability to open the eyes many of these patients thought they were blind. Consequently when they were taught to open their eyes it was found that they could only see indistinctly, as they had hysterical paralysis of accommodation, or less frequently they could not see at all, as they had become so convinced that they were blind that they had ceased to look, and, not looking, they could not see. Simple explanation followed by re-education in looking resulted in permanent recovery. Similar cases, generally of much less severity and often consisting of nothing more than frequent blinking, are not uncommon in civil life.

In the same way the whispering in cases of laryngitis, which was originally in part voluntary to avoid pain and in part due to a protective reflex, was frequently perpetuated as hysterical aphonia. This was most commonly the case when an expert laryngoscopic examination had revealed the presence of some abnormal congestion or secretion, which led to intra-laryngeal medication, as both the diagnosis and treatment afforded the necessary suggestion to perpetuate the idea in the patient's mind that his voice was permanently lost. When these cases were taken away from their unfavourable surroundings and treated by explanation, persuasion, and re-education, without any recourse to suggestion by electricity, anæsthetics, or other means, they invariably recovered. A series of a hundred cases treated at Seale Hayne Hospital were cured at a single sitting, although the average duration of the aphonia before admission was 205 days. About one-third of these cases were not caused by gassing, but by the same suggestive influences as those which give rise to hysterical aphonia in civil life. We believe that the liability to relapse is greatly reduced by our simple method of treatment and the avoidance of suggestion.

The gastritis caused by gassing resulted in vomiting—a protective reflex which fulfilled its object by removing the irritant from the stomach. The actual gastritis rapidly disappeared, and whenever the vomiting persisted for more than three or four weeks it was always hysterical. A very large number of soldiers were invalided from the service for so-called gastritis, the only symptom of which was vomiting. We found that cases of this sort could invariably be cured by a single conversation, if this was continued until the patient was obviously quite convinced that he was no longer suffering from gastritis; and that he could eat anything without fear of vomiting, even if he had vomited after every meal for many months and had been kept on a strictly fluid diet.

Hysterical vomiting is much more common in civil life than is generally supposed. I believe that all cases of the so-called pernicious vomiting of pregnancy are really due to the hysterical perpetuation of the vomiting, which is physiological during the first few weeks. Similarly, the persistent vomiting, which is a common symptom in young anæmic women and was formerly regarded as evidence of gastric ulcer, is generally hysterical, and is due, like the vomiting in soldiers after gassing, to the perpetuation of a symptom produced originally by an acute attack of gastritis. The vomiting in chronic appendicitis, which may continue even after the removal of the diseased appendix, and of phthisis, and the cyclic vomiting in children, are in great part hysterical. All these varieties of hysterical vomiting can be cured by simple explanation, generally at a single sitting, just as in soldiers, and require none of the treatment by isolation, dieting, and drugs which is commonly given, even by those who suspect that there is a nervous element in the condition.

HYSTERICAL PARALYSES AND CONTRACTURES FOLLOWING TRIVIAL WOUNDS.

Perhaps the most common of the hysterical conditions in soldiers were the paralyses and contractures [5] which followed comparatively trivial wounds of the limbs. A great many different forms were observed, and in many cases the paralysis and contracture were associated with marked vaso-motor disturbances, including cyanosis or pallor, a pulse of small amplitude, and œdema, and trophic changes in the skin, nails, and bones. At the same time the muscles showed a moderate degree of atrophy, accompanied by an increased irritability to mechanical stimulation and certain changes in electrical reactions, which did not, however, amount to the reaction of degeneration. These changes were often most easily observed under a general anæsthetic, which did not result in complete relaxation of the spasm until a stage of anæsthesia beyond that in which consciousness is first lost. Babinski and Froment experienced considerable difficulty in producing any improvement in the paralysis and contracture by psycho-therapy. Impressed by this and by the fact that the associated vaso-motor and trophic conditions could not possibly be hysterical, as they were obviously neither capable of being produced by suggestion nor cured by psycho-therapy, they concluded that the paralysis and contracture were also not hysterical. They revived the old theory of reflex nervous disorders, with which Vulpian and Charcot had sought to explain the muscular atrophy and spasm which often accompany diseases of joints. They ascribed both the muscular symptoms and the associated vaso-motor and trophic disturbances to some obscure form of reflex action.

Our experience has led us to believe that there is no foundation for this theory of Babinski and Froment, and that all the cases they describe as reflex are really hysterical. The immobility and spasm may arise as a voluntary or reflex response to pain, or they may be due to localised tetanus, or to the application of splints or bandages, the abnormal posture assumed and the immobility and spasm being perpetuated by auto-suggestion after the primary cause has disappeared, to which very often is added the hetero-suggestion involved in treatment by electricity and massage when this is not really required. The hysterical paralysis and contracture which result could invariably have been prevented by persuasion and re-education directly the condition of the wound made active movement permissible.

The hysterical nature of the paralysis and contracture is proved by their rapid cure with psycho-therapy, as has also been shown by Roussy and others in France, and Colin Russell in Canada. In a series of 100 consecutive cases treated at the Seale Hayne Hospital, the majority, if not all, of which might have been diagnosed as reflex, as each one of the cases shown in the illustrations of Babinski and Froment's book was represented in our series, 96 were cured at a single sitting of an average duration of 54 minutes, and the remainder were cured in 4 days, 2 weeks (two cases), and 4 weeks respectively, although the average duration of treatment before admission was 11 months. It is clear, therefore, that the paralysis and contracture are hysterical, as they are caused by suggestion and cured by psycho-therapy.

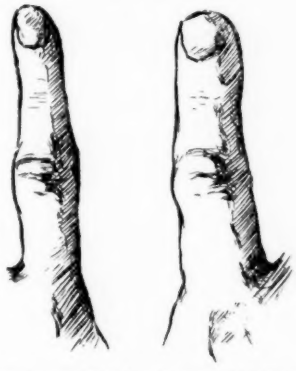
EXPLANATION OF ORIGIN OF SIGNS AND SYMPTOMS.

Disuse of a limb, whether this is due to organic disease or hysteria, leads to deficient circulation. This by itself is enough to explain the associated vaso-motor symptoms, as they are most marked in cold weather and in individuals who have always had a feeble peripheral circulation. They disappear temporarily, as Babinski and Froment showed, by artificially increasing the circulation by the application of heat, and permanently, as we have repeatedly observed, by restoring the power of movement by means of psycho-therapy.

Deficient circulation gives rise in turn to deficient nutrition, so that the skin and subcutaneous tissues become atrophied (Fig. 2), the bones decalcified as shown by the X rays, and the nails thin and brittle. In a striking case, in which some trophic changes had developed as a result of hysterical paralysis and contracture of over a year's duration, and in which the power of movement was restored at a single sitting, the nails subsequently showed a very definite horizontal line separating the opaque, vertically ridged, thin and brittle part, which grew during the period of disuse, from the pink, smooth, and otherwise normal part, which began to grow immediately recovery took place. (Fig. 3.)

The changes in mechanical and electrical reactions, and in the deep reflexes, were also shown by Babinski and Froment to disappear when the circulation was temporarily improved by immersion in hot water, and we found that immediate and permanent restoration followed recovery from the paralysis and spasm as a result of psycho-therapy. These changes, therefore, are nothing more than the functional effects on muscular tissue of deficient circulation.

FIG. 2.



Atrophy of index finger of left hand, compared with normal finger of right hand, resulting from deficient circulation from disuse caused by hysterical contracture of 18 months' duration, drawn after recovery from contracture.

In the same way the rigidity of the finger-joints, observed both in cases of organic nerve injury and hysterical paralysis and contracture, which persists under deep anæsthesia, having always been regarded as due to adhesions or fibrous contractures, and which only gives way under forcible manipulation with sounds of tearing and resulting effusion, is really the result of some coagulative process in the fibrous tissue caused by the accumulation of products of metabolism, which are normally removed by the blood when the circulation is efficient. It is well known that a slight increase of mobility of such joints follows the application of warmth, which improves the circulation, and we have found that complete and immediate restoration of mobility followed the return of the natural circulation as a result of the rapid cure of the paralysis and contracture; this must have been due to the removal of waste products permitting the temporarily coagulated fibrous tissue to assume its normal fluid consistence.

FIG. 3.

Trophic changes in nail caused by deficient circulation from disuse through hysterical paralysis of over a year's duration, associated with normal nail grown since sudden cure six weeks earlier.

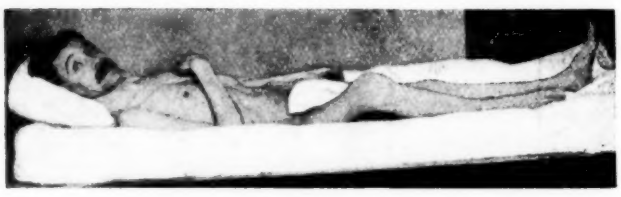
It is thus clear that the so-called reflex nervous disorders of Babinski and Froment are really hysterical, and that the associated vaso-motor and trophic disorders are caused by the resulting disuse.

HYSTERIA GRAFTED ON TO ORGANIC BASIS.

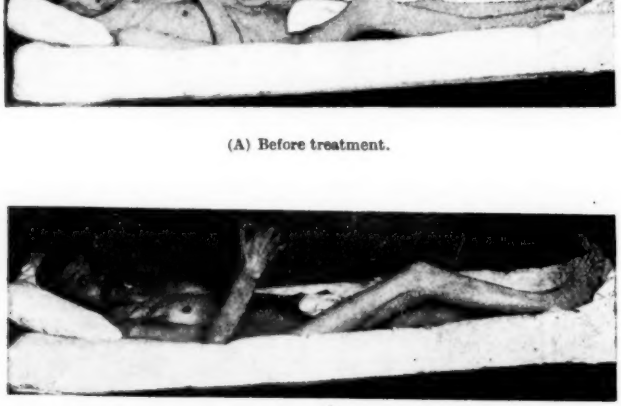
The last group of cases is, I think, the most important, because it is one which is very common both in soldiers and civilians, though its true nature is comparatively rarely

FIG. 4.

Combined Hysterical and Organic Hemiplegia of Two Years' Duration following Nephritis.



(A) Before treatment.



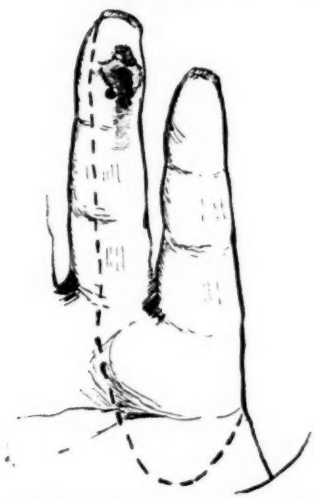
(B) After 2½ hours' treatment.

(C) After six months' treatment; organic signs still present.

(D) Facial paralysis before treatment.

(E) After 45 minutes' treatment for face.

FIG. 5.



Hysterical anæsthesia in median nerve distribution, with unfelt accidental burn, cured by suggestion in less than one minute, ten months after injury to median nerve.

recognised. It consists of symptoms which are primarily organic and due to an injury or disease of the nervous system, but which are eventually in part or completely hysterical.[6] When the structural changes produced by an injury or acute disease of the nervous system gradually diminish in extent, owing to the disappearance of the vascular and other temporary changes which surround the comparatively small area of total destruction—if, indeed, such an area is present at all—the symptoms caused by the throwing out of action of the parts controlled by the nervous tissues primarily involved should disappear *pari passu*. Just as the physical signs in slowly progressive diseases, such as tabes and disseminated sclerosis, often precede the onset of symptoms, so in these cases the physical signs are generally still present when the functional capacity has returned to normal; and if the lesion does not disappear completely they may remain as permanent evidence of a past organic lesion.

In many cases, however, a man does not realise that his functional capacity is improving. If he has been hemiplegic, he has in the early days made repeated efforts to move his paralysed limbs, but without success, and he finally gives up the attempt and reconciles himself to the idea of permanent hemiplegia. If his physician is too much concerned with the possible dangers of early movement, he will exaggerate the patient's own fears of permanent disability, with the result that the organic hemiplegia is gradually replaced by hysterical hemiplegia instead of slowly disappearing as the organic lesion becomes more and more reduced in extent. A time may eventually arrive when the hemiplegia is entirely hysterical, but, as already pointed out, the physical signs of organic disease, such as extensor plantar reflex, ankle-clonus, exaggerated deep reflexes and lost abdominal reflex, may still be present on the affected side.

Many additional signs have been described, particularly by Babinski, which depend upon the fact that the behaviour of the paralysed muscles in organic hemiplegia differs in various respects from what an average layman would expect, so that a man with hysterical hemiplegia, the exact nature of which must depend on his own conception of how his muscles would behave if they were paralysed,

fails to show these signs. But if the hysterical hemiplegia was suggested by an organic hemiplegia, these signs would be present, as the patient would be trained by his own organic symptoms to maintain them in an unaltered form when they were no longer organic. Thus, while the upper part of the face is unaffected, the lower, including the platysma (Babinski's platysma sign), would be paralysed; Babinski's pronation sign and the combined flexion of the thigh and pelvis (Babinski's "second sign") would be present. In the same way the characteristic posture of the arm and leg in organic hemiplegia would be perpetuated. We should thus be face to face with a case in which the symptoms had originated as a result of an injury or disease which is known to result in organic hemiplegia, and in which the incontestible physical signs of organic disease, such as the extensor plantar reflex and the other changes in deep and superficial reflexes, as well as the characteristic posture and the accessory signs described by Babinski and others, are present, although the hemiplegia is entirely hysterical. Such cases can only be diagnosed by experimental psycho-therapy; if, as occurred in numerous cases under our care, more or less complete recovery takes place—although, of course, the permanent physical signs of organic hemiplegia persist—it is clear that the paralysis is almost entirely hysterical, although grafted on an organic basis. (Fig 4.)

The old method of diagnosing between organic and hysterical paralysis thus breaks down, as the physical signs of organic disease do not, as is too often assumed, indicate that the paralysis is entirely organic, but simply that there is an organic element in the case, which may be quite insignificant in proportion to the hysterical. Moreover, it is no help in such cases to consider whether the patient is or is not neurotic, as the large majority have no personal or family history of neuroses, and are in every way normal except for the particular symptom from which they are suffering. No more powerful suggestion of hysterical paralysis could be imagined than organic paralysis, and no abnormal degree of suggestibility is necessary for its development.

We have seen cases of homonymous hemianopia, which is commonly regarded as always organic, persistent headache, amnesia, and fits develop after head injuries; paraplegia and persistent incontinence of urine after spinal injuries; paralysis and anæsthesia after nerve injuries in the exact distribution of the nerves, the anæsthesia even resulting in accidental burns (Fig. 5); all these were primarily organic and showed the characteristic features of symptoms caused by an organic lesion, although the recovery with psycho-therapy proved that they were hysterical. In many cases, of course, recovery was incomplete, the proportion of hysterical to organic incapacity depending upon the extent of permanent damage done to the nervous tissues.

In the same way we have found that the well-recognised association of hysteria with disseminated sclerosis is even more common than is generally supposed; that an hysterical element is frequent in tabes and may even occur in such a disease as Friedreich's ataxy. A soldier suffering from the latter disease, who had been unable to walk or stand without assistance and had been unable to feed himself or write for several months on account of his extreme ataxy, improved to such an extent as a result of a week's psycho-therapy that he was able to walk steadily and use his hands for all ordinary purposes, although, of course, the physical signs remained unaltered, and the ultimate prognosis was as hopeless as before.

We believe that the same principle should be applied to all organic disease, whatever part of the body is affected, and that the possibility of an hysterical and therefore removable element should be considered, however normal the mentality of the patient may appear to be. Our experience further shows that the ideal method of treatment in such cases is a rapid one—by explanation in language suited to the intelligence of the individual, combined, when necessary, with persuasion and re-education.

References.

1. A. F. Hurst and J. L. M. Symns: Seale Hayne Neurological Studies, i., 15, 1919.
2. A. F. Hurst and J. L. M. Symns: S.H.N.S., i., 1, 1919.
3. A. F. Hurst: S.H.N.S., i., 7, 1919.
4. A. F. Hurst, J. L. M. Symns, and R. Gainsborough: S.H.N.S., i., 19, 1918.
5. A. F. Hurst: S.H.N.S., i., 43 and 244, 1919.
6. A. F. Hurst and J. L. M. Symns: S.H.N.S., i., 113, 1919, and THE LANCET, 1919, 1, 369.

NOTES ON
THE SERUM TREATMENT OF BACILLARY DYSENTERY,
AND ON DYSENTERY ARTHRITIS.

BY BERNARD G. KLEIN, M.D. OXON.,
LATE TEMPORARY CAPTAIN, R.A.M.C.

FOR a period of a year and three months—September, 1917, to November, 1918—the writer had the opportunity of observing and treating a large number of cases of dysentery and dysentery suspects at No. 25 Stationary Hospital, Rouen. After excluding all cases of (1) amœbic dysentery; (2) acute enteritis or gastro-enteritis—generally diagnosed as "diarrhœa"; and (3) various intestinal disorders (many of them the sequelæ of old dysentery), collectively termed "colitis," there remain 973 cases which, on clinical or bacteriological grounds, or on both, were adjudged to be examples of bacillary dysentery.

In 412 of these cases dysentery bacilli were recovered from the stools. In 561 no dysentery bacilli were found, but the illness was in every instance marked by sudden acute onset, typical dysenteric symptoms and stools, and the absence on careful examination of *Entamœba hystolytica*. The evidence as to the character of the stools is deficient in 50 of the cases from which dysentery bacilli were isolated. In 44 no description of the dejecta during the acute stage was recorded, whilst in 6 it was definitely stated that the stools were not dysenteric in appearance. Some of these cases may have been therefore *apparently* simple diarrhœa. The presence of dysentery bacilli in cases of apparently simple diarrhœa is well recognised and has been recently emphasised [5] in France.

For convenience these 973 cases have been roughly classified as follows:—1. *Mild.* The characteristic symptoms and stools were observed in these cases (737 in number), but were not severe in degree and lasted at the most about a week. 2. *Typical average*, or what might be termed moderately severe; dysenteric symptoms lasting on the average rather over a fortnight from the onset of the illness. 3. *Severe*—with all the symptoms of the disease marked, but not to such a degree as to endanger life. 4. *Grave*—all showing, in addition to severe dysenteric features, marked constitutional disturbance with toxic symptoms, such patients being on the "dangerously ill" or "seriously ill" list.

Serum Treatment: Methods of Administration.

A complete record of 51 cases treated with anti-dysenteric serum will be found in tabular form in Table I. Naturally what appeared to be the worst cases were selected for serum treatment, the total of 51 so treated consisting of 7 "typical average," 22 "severe," and 22 "grave"—9 of the latter terminating fatally. Amongst cases classed as severe and grave—18 in number—not treated with anti-dysenteric serum, the majority had already been ill for nine or ten days when admitted, some for considerably longer. All the six grave cases, two of whom died, had already, when first seen, passed into a toxic collapsed state—a state well described in a recent account of a Shiga epidemic in France as one of dehydration and profound intoxication.[1]

Polyvalent serum was used, as supplied for the use of the army both by Burroughs and Wellcome and by the Lister Institute. In the earlier cases the ordinary injection into the tissues, subcutaneous or intramuscular, was practised. Later, as is shown in Table I., reliance was placed almost entirely on the intravenous method. A simple cylindrical glass vessel was used of about 50 c.cm. capacity, with 18 inches of rubber tubing attached to the outlet at its lower end. The whole apparatus was sterilised by dry heat. The serum was run in by gravity in about twice its bulk of normal saline at body temperature.

The intravenous method seems to possess advantages over the ordinary injection into the tissues, since: (*a*) it enables the serum to get to work at once; (*b*) the whole of the dose is available; whereas it is at least possible (cf. following paragraph re anaphylaxis) that some of the constituents of the serum introduced into the tissues are destroyed locally; (*c*) it is practically painless.

Against these advantages is to be set the possible danger of anaphylaxis. Of the 23 patients who received serum

TABLE I.—*Summary of 51 Cases Treated with Anti-Dysenteric Serum, in the Order in which they Occurred.*

Case, age, &c.	Day	Dose. c.cm.	Method	Remarks.
1. F. G. W., 21. Shi. Fatal.	10 13	25 25	Sc. ,,	No effect. Died of exhaustion on 31st day of disease.
2. B., 27. Shi. Fatal.	6 7	50 50	Sc. ,,	No effect. Died of exhaustion (complicated by sepsis and gas gangrene) on 12th day.
3. G. A., 32. Flex. Grave.	6	50	Sc.	Gradual recovery; acute stage lasting 3 weeks. Was in bed a month and resumed ordinary diet in 5 weeks.
4. A. C., 26. Shi. T.A.	10	40	Sc.	Improved in 3 days; acute stage lasting 2 weeks. Convalescent 3 weeks from onset.
5. W. B., 38. Flex. Severe.	6 10	60 50	Sc. ,,	Improved 3 days after second dose; stools normal 6 days after it. Good recovery.
6. O. G., 19. Shi. Severe.	7	40	Sc.	Began to improve in 48 hours. Able to eat ordinary food 10 days later.
7. A. E. F., 24. T.N.D. Severe	21	50	Sc.	No immediate effect. Prolonged illness. Stools still dysenteric on 34th day.
8. J. H. F., 20. Shi. Severe.	4	50	Sc.	Improved in 42 hours. Acute stage lasted another 2 days. Convalescent 2 weeks after onset.
9. J. M., 32. T.N.D. Severe	14 16	50 50	Sc. ,,	Recovery very slow. Was in bed 24 days after the second dose. Apparently cured.
10. F. M., 30. Flex. Severe	16	25	Sc.	Improved in 3 days; free from symptoms in 6 days.
11. H. C. J., 32. Flex. T.A.	9	25	Sc.	Started to improve in 48 hours. Stools normal 16 days from onset of illness.
12. A. T., 35. Flex. Severe.	9	25	Sc.	No marked effect. Acute stage ended 4 days later. Convalescent 1 month from onset.
13. W. J. H., 25. Flex. Grave.	11 14	50 50	Sc. ,,	No effect noticed. Started to improve 48 hours later. All acute symptoms gone in 10 days. Convalescent in 5 weeks.
14. A. B., 30. T.N.D. Grave.	10* 12*	50 50	Sc. ,,	Started to improve 3 days after second dose. Persistent colitis afterwards.
15. H. P., 20. T.N.D. Severe.	1	50	Sc.	Marked improvement in 48 hours. Formed stools on 8th day. Good recovery.
16. T. G. S., 19. Flex. Severe.	5	25	Sc.	Recovery gradual. Acute stage 14 days. Subsequent recovery excellent.
17. T. D., 22. T.N.D. Fatal.	19	50	Iv.	No effect. Died of exhaustion 34th day.
18. J. McC., 32. T.N.D. T.A.	5	25	Sc.	Improved in 48 hours. Stools normal in 6 days. Good recovery.
19. S. C., 25. Shi. Grave.	4 6	50 50	Iv. ,,	Marked change in 24 hours. Further improvement in 24 hours. Normal stools by 28th day.
20. W. S., 21. T.N.D. Severe.	7	25	Iv.	Abdominal pain and diarrhœa less next day. Acute symptoms ceased in 5 days.
21. E. H., 30. T.N.D. Grave.	5 6 9	25 25 50	Sc. ,, Iv.	Prior to admission. Very ill when admitted. Gradual recovery, lasting 1 month, but no persistent colitis.
22. W. S. S., 23. T.N.D. Severe.	11	25	Sc.	Effect only transitory. V. prolonged recovery with debility and myocarditis.
23. H. B., 19. Shi. Severe.	6	40	Im.	General condition much better in 3 days. Normal stools 10 days after treatment.
24. H. B., 31. Shi. Fatal.	6 9	40 80	Im. Iv.	No apparent effect. Temporary diminution of toxic symptoms. Severe hæmorrhage. Death on 14th day.
25. W. B. L., 24. T.N.D. Grave.	8 10	50 50	Iv. ,,	Slightly better in 24 hours. Improved in 48 hours. Excellent recovery.
26. J. C., 36. Shi. Fatal.	10 13	40 80	Iv. ,,	No effect. Died of exhaustion 24th day.
27. A. J. C., 22. T.N.D. Fatal.	7 10	60 80	Iv. ,,	Slight transient improvement after each dose. Died of exhaustion on 16 h day.
28. R. T., 37. T.N.D. Severe.	11	50	Sc.	Improvement began a week later. Recovery unsatisfactory.
29. S. T., 29. Shi. Fatal.	3 6 10	40 100 50	Iv. ,, ,,	No effect. Toxic symptoms less for a time. Died of exhaustion 31st day.
30. A. F. M., 24. T.N.D. T.A.	6	40	Sc.	Better in 48 hours. All acute symptoms gone in 3 days.
31. F. P., 29. T.N.D. Severe.	9	40	Sc.	Typical dysenteric stools for 2 more days. Colitis lasted at least 16 days.
32. P. E. L., 47. T.N.D. Fatal.	5	100	Iv.	Diarrhœa and abdominal pain ceased by 12th day. Died 14th day (acute nephritis).
33. S. F. S., 20. Flex. Severe.	3 4	20 100	Sc. Iv.	To "desensitise." Marked improvement within 24 hours. Rapid recovery.

TABLE I.—(*Continued.*)

Case, age, &c.	Day	Dose. c.cm.	Method	Remarks.
34. G. S., 28. T.N.D. Severe.	6	40	Sc.	(Prior to admission.) Dysenteric symptoms lasted 20 days. Slow recovery.
35. J. A. P., 25. T.N.D. Severe.	6	40	Im.	Diarrhœa less in 3 days. Dysenteric state lasted 3 weeks. Subsequent recovery satisfactory.
36. R. H. H. S., 23. Shi. Grave.	7 8	20 60	Sc. Iv.	To "desensitize." Marked improvement in 48 hours. Severe hæmorrhage 16th day. Eventually quite recovered.
37. E. H., 33. Shi. Grave.	6 8	60 60	Iv. ,,	No marked effect from first dose. Started to improve a few hours after second. Excellent recovery.
38. E. F. H., 38. Shi. Severe.	9	40	Iv.	No appreciable effect. Recovery slow (with arthritis of knee) after 29 days.
39. H. T., 34. T.N.D. T.A.	6	40	Sc.	Better in 48 hours. Rapid recovery. Convalescent on 12th day.
40. J. F., 42. Flex. Severe.	10	100	Iv.	Marked improvement in 24 hours. All symptoms gone in 16 days. Rapid recovery.
41. T. W. B., 28. Shi. T.A.	3	40	Im.	Improved. Stools free from blood in 48 hours. Colitis lasted 2 weeks. Good recovery.
42. C. R., 27. Shi. Grave.	3	60	Iv.	Marked improvement in 48 hours. Practically convalescent in 2 weeks.
43. F. W. G., 19. Shi. Grave.	6 8	80 70	Iv. ,,	Slight improvement in 48 hours. Marked improvement in 24 hours. Good recovery.
44. D. L., 26. Shi. Fatal.	7 10	40 80	Sc. Iv.	(Prior to admission.) No apparent effect. Temporary improvement. Died suddenly on 17th day of acute myocardial failure.
45. R. F., 22. Shi. Grave.	4 7	40 70	Sc. Iv.	(Prior to admission.) No apparent effect. Improved in 48 hours. Practically well in 3 weeks.
46. E. W., 22. Shi. T.A.	9	40	Sc.	(Prior to admission.) Colitis lasted 11 days. Dysentery arthritis began on 14th day.
47. H. R., 20. Shi. Severe.	6	40	Iv.	Started to improve in 24 hours. Stools formed in 3 days. Excellent recovery.
48. C. F. C., 36. T.N.D. Severe.	19	60	Sc.	Gradual recovery. Colitis lasted 5 weeks and probably persisted.
49. C. M., 36. Shi. Grave.	4 6	80 120	Iv. ,,	Striking change in 24 hours. Diarrhœa less in 48 hours. Colitis lasted about a month.
50. H. S. M., 26. T.N.D. Severe	10	100	Iv.	Striking improvement in 24 hours. Diarrhœa ceased in 48 hours. Excellent recovery.
51. H., 20. T.N.D. Grave.	6	80	Iv.	Started to improve within 48 hours. Dysenteric stage about 3 weeks. Good recovery.

Shi., Shiga. Flex., Flexner. T.A.= Typical average. T.N.D. = Type not determined—i.e., no dysentery bacilli isolated from stools. Sc., Subcutem. Iv., Intravenous. Im., Intramuscular.

* Exact date of onset uncertain, but at least ten days prior to serum treatment, probably much more.

intravenously, 4 had been wounded and had antitetanic serum some time previously during the war. Of these 4 "sensitised" men, one (Case 45, Table I.), on receiving serum intravenously, immediately developed anaphylactic shock, and the injection had to be discontinued instantly. A second patient, also "sensitised," had received serum by the intravenous method a few minutes before with no ill results. Both these patients had had a subcutaneous injection of 40 c.cm. of anti-dysenteric serum three days previously; consequently, the possibility of anaphylaxis was not considered. The two other cases in question (Nos. 33 and 36) had occurred earlier in the series; they had been given 20 c.cm. of serum subcutaneously 24 hours before receiving the intravenous dose, and neither of them suffered from anaphylactic shock. A desensitising effect, therefore, is not ensured in human beings by serum given *subcutaneously*. After the case of anaphylaxis above described there were no more "sensitised" patients requiring serum treatment. Consequently there was no opportunity of trying the method I had intended to adopt—namely, to give quite a small quantity of serum (about 1 c.cm.)—intravenously, and follow this after a few hours by the main dose, also administered intravenously in the manner already described.

The Dose of Serum: Its Value at Different Periods of Illness.

As will be seen from Table I., there was a progressive tendency towards larger doses of serum, the greatest single dose being 120 c.cm. Opinions differ as to what constitutes

a large dose. Thus Cowan and Miller[2] say they "used serum fairly freely ....., giving 40, 60, or 80 c.c. as a dose and repeating it as seemed indicated ....." On the other hand, Castellani and Chalmers[3] say: "The serum, in our experience, should be given in large doses ..... 20 c.c. doses twice daily and in very severe cases 4 times daily."

The statement made by Cowan and Miller,[2] that "it seems probable that the value of serum is greatest in the first 3 or 4 days of the illness," is in harmony with the writer's experience; whilst the further statement, "that it is of less or little value in the second week," is more or less confirmed by the results obtained in this series of 51 cases. The 5th–6th days have generally seemed about the critical period for intravenous serum, at any rate in Shiga infections. One rather gained the impression that after that period a bad Shiga case was either going to get better or die, irrespective of serum treatment. This idea does not, of course, imply that serum is useless after the fifth or sixth day, since by it the manner and rate of recovery may be much influenced. Some of the cases recorded in Table I., especially Flexner infections, seem to provide exceptions to the general ill-success of serum treatment started in the second week—instance Case 40. In this patient it is hardly an exaggeration to say that the serum worked like a charm.

Table I. gives a summary of the 51 cases, with the degree of illness, type of infection, dose of serum and day on which it was given, the method, and the result.

Tables II. and III. are intended to show the effect of the time at which serum was given on the nature of the subsequent recovery.

TABLE II.—*51 Cases Treated with Anti-Dysenteric Serum.*

Day injected.	No. of cases.	Died.	Recovery unsatisfactory.
1st–4th	9	1	1
1st–5th	13	2	2
6th–9th	24	4	5
10th and over	14	3	6

TABLE III.—*23 Cases that Received Serum Intravenously.*

1st–5th	6	2	1
6th–9th	12	2	2
1st–6th	10	2	1
7th–9th	8	2	2
10th and over	5	3	—

The Value of Serum Treatment.

The value of anti-dysenteric serum may be considered from two aspects.

(1) *Its power to save life.*—The writer's experience suggests that such power is available only during the first few days of the attack—perhaps five days or even six days if the intravenous method be used.

(2) *Its effect on the rate and completeness of recovery.*—As is well known, in the more severe cases the initial dysenteric phase is succeeded by a state of profound prostration—the stage of "dehydration and profound intoxication"—characterised by rapid heart's action, great muscular weakness, tendency to vomit or hiccough, thirst, difficulty in swallowing, and in extreme cases the typical "abdominal" facies. Diarrhœa may or may not have ceased. Abdominal pain is generally absent. This stage generally makes its appearance some time about the tenth day. Once it is fully developed no serum treatment seems of benefit. Occasionally it is already present much earlier than the tenth day (Case 2, Table I.). Between the critical period of the 5th–6th days and the extreme toxic phase there is an intermediate stage about the 6th–9th day, during which anti-dysenteric may be given with a reasonable prospect of cutting short the attack and effecting a completer recovery than would otherwise have followed. To show this favourable effect of serum treatment the following table is given. In it are contrasted 47 serum-treated cases with 134 non-serum treated cases—fatal cases being excluded—to show the duration of the dysenteric stage and occurrence of sequelæ in the two groups.

The term "persistent colitis" is applied only to cases in which a dysenteric state continued for at least a month.

TABLE IV.—*Comparison between 47 Cases Treated with Serum and 134 Cases Not Treated with Serum.*

	Class of case.	No. of cases.	Duration of dysenteric stage.	Recovery unsatisfactory.	
				Persistent colitis.	Other complications.
Serum treated.	T.A.	7	Average 11 days.	—	1 arthritis.
	Severe.	22	,, 20 ,,	1	2 (1 arthritis, 1 debility).
	Grave.	13	,, 23 ,, (2 uncertain.)	1	1 debility.
Not serum treated.	T.A.	118	88 cases averaged 16 days. (6 uncertain.)	24*	3 arthritis.
	Severe.	12	11 cases averaged 27 days. (1 exceeded 2 mths.)	4	2 (1 debility, 1 arthritis).
	Grave.	4	Average 24 days.	—	3 debility.

* Not included in the 88 in fourth column.

Table IV. shows this complication occurring twice in 51 serum-treated cases, as against 28 times in 134 cases not treated with serum. The two serum-treated cases that suffered from arthritis both received their serum as late as the ninth day of their illness. In an analysis of cases treated with anti-dysenteric serum it was stated recently[4] that "not a single case of dysenteric arthritis occurred amongst patients who were treated on or before the fifth day of illness."

Conclusions.

1. Anti-dysenteric serum should be given in large doses—about 60 to 100 c.cm.
2. It is best given intravenously.
3. It is most efficacious when given early in the disease.
4. From the point of view of serum treatment a severe case of bacillary dysentery may be considered in three stages: (*a*) From the onset of the illness to a period somewhere about the 5th–6th days. During this stage anti-dysenteric serum (especially if given intravenously) has a most favourable effect, both as regards averting a fatal result and hastening recovery. A minority of cases fail to respond even to this early treatment. (*b*) An intermediate stage, from about the 6th–10th day. A case having reached this stage is likely either to die or recover, irrespective of serum treatment. Nevertheless, the rate and completeness of recovery may be still affected by serum, especially if given in large doses, such as 100 c.cm. (*c*) A third stage—the stage of "dehydration and profound intoxication"—generally starting about the tenth day. During this phase of the disease serum treatment is practically useless. A minority of cases which have lasted to the tenth day or beyond it (without passing into the third stage) are still benefited by serum given in sufficient amount.

DYSENTERY ARTHRITIS.

In a series of 973 cases of bacillary dysentery, true dysentery arthritis occurred in eight instances. The particulars of these 8 cases are afforded by the following summary (Table V.).

I. *Clinical Features.*

(*a*) *Character of joint swellings.*—It will be seen from the accompanying table that the knee-joint was involved in every case, and that only two cases had other joints affected. One of these two had both temporo-maxillary joints involved in turn, the symptoms lasting only a few days. The other is described in the table as having arthritis of both ankles. In reality the fluid swelling was chiefly on the dorsal surface of the foot and ankle (with œdema of the foot) and appeared to be in the synovial sheaths of the extensor tendons. The fingers were affected at the proximal interphalangeal joints. The knee-joint swellings were all very similar. They were recognised about two days after the onset of pain, and gradually increased for a few days until the deformity of the part was obvious—the natural hollows being obliterated, with marked swelling of the subcrureus bursa. No reddening or flush of the skin or signs of peri-articular thickening were present.

(*b*) *Time of onset and course.*—The day of the disease on which arthritis began is shown in each case in the table. The commonest time was somewhere about the twentieth day, which is the day mentioned as the usual starting point

TABLE V.

Case and age.	Infection and severity.	Joints affected.	Day of onset.	(a) Duration. (b) Pyrexia	Stools at time of onset.	Nature of effusion.
1. A. E. W., 28.	Flexner (T.A.).	L. knee.	19th.	(a) 1 month at least; (b) 5 days	Some mucus; trace of blood.	Not exam.
2. H. H., 19.	Shiga (T.A.).	R. knee.	About 20th.	(a) 3 weeks at least; (b) present*	Not known.	Not exam.
3. J. S. S., 31.	Shiga (mild).	Both knees and ankles, several fingers.	15th.	(a) 5 weeks; (b) present*	Simply loose.	Serous, sterile (test for agg. not made).
4. E. F. H., 38.	Shiga (severe)	R. knee.	24th.	(a) (b) At least 5 days.	Normal	Not exam.
5. C. A. G., 27.	Flexner (T.A.).	L. knee. Both jaw joints.	17th.	(a) 34 days. (b) 2 weeks.	,,	Serous, sterile, sp. agg. present.
6. W. P. B., 28.	T.N.D. (T.A.).	Both knees.	19th.	(a) 10 days. (b) 3 days.	Nearly all mucus.	Serous, sterile, no agg.
7. H. E. C., 19.	Shiga (severe)	One knee.	21st.	(a) 12 days. (b) 3 days.	Simply loose.	Serous, sterile, sp. agg. present.
8. E. W., 22.	Shiga (T.A.).	L. knee.	14th.	(a) 22 days. (b) 16 days.	Normal	Serous, sterile, sp. agg. present (exam. twice).

* Duration uncertain.
T.A. = Typical average or moderately severe.
T.N.D. = Type not determined—i.e., no dysentery bacilli isolated from stools. Sp. agg. = Specific agglutinin.

of the arthritis in Cowan and Miller's cases, recently described by them.[2] A further point shown in the table is that the arthritis outlasted the pyrexia by which it was at first accompanied. Five of the cases were observed from start to finish, and in them all trace of fluid disappeared. No deformity of or thickening round the joint was apparent and there were no adhesions. The only abnormality was marked wasting of the muscles—the extensor muscles of the thigh and the calf muscles.

(*c*) *Treatment.*—The treatment consisted in immobilising the joint by the application of a McIntyre's splint and the removal of some of the fluid to relieve the pressure—60 to 100 c.cm. was removed, generally much to the relief of the patient.

(*d*) *Nature of the arthritis.*—It has no relation to the arthritis of serum sickness; 5 out of the 8 cases had received no serum. Neither had it any relation to previous injury in the 8 cases in question. Clinically it might have been mistaken for gonorrhœal arthritis, but in no case was there a history of such infection. From acute rheumatism it differed in the abundant effusion with absence of periarticular inflammation, by its limitation in most cases to the knee-joint, and by the absence of any cardiac manifestations. It seems probable, then, that this form of arthritis is a true complication of bacillary dysentery and merits the name "dysentery arthritis." It is clearly not confined to severe cases of the disease, but may equally well occur after mild attacks; nor does its onset coincide with any particular stage in the intestinal inflammation, as far as can be judged by the stools. Both these points are shown by Table V.

No dysentery bacilli were recovered from the joint fluid in the 5 cases examined. In the cases described in their paper by Cowan and Miller[2] the joint fluid was cultured in 2 cases, one proving sterile, the other containing only *B. coli*. These negative findings are in accordance with the commonly accepted view that the arthritis is due to toxins.

II. *Laboratory Findings.*

The joint fluid was taken for examination in 5 out of the 8 cases, in one case on two separate occasions nine days apart. All the samples were similar in character—namely, a viscous, straw-coloured liquid, slightly turbid, which clotted on standing. No micro-organisms were found by direct examination of smears from the clot or by culture.

Agglutination tests were made by Dreyer's macroscopic method with the standard types of dysentery bacilli, using both the blood serum and joint fluid. The details are given in Table VI.

TABLE VI.

Case.	Agglutination results.			
	Blood serum.		Joint fluid.	
3	18.8.18	36 units (Shiga).	22.8.18	Agglutinins not determined.
5	22.9.18	18 ,, (Flexner).	24.9.18	More than 50 units (Flexner).
7	10.10.18	More than 50 units (Shiga).	10.10.18	More than 50 units (Shiga).
8	23.10.18	48 units (Shiga).	23.10.18	24 units (Shiga).
	1.11.18	50 ,, ,,	1.11.18	50 ,, ,,

In Cases 7 and 8 practically the same degree of agglutination was obtained both with the joint fluid and the blood serum. In the latter case, examined nine days later, the agglutinin content of the joint fluid had increased, whilst the blood serum remained at the same titre. In Case 6 neither the joint fluid nor blood serum showed any agglutinins. In this patient no dysentery bacilli had been found in the stools. In Case 5 the joint fluid was examined a few days after the blood serum and showed a higher agglutination than the latter with *B. dysenteriæ Flexner*.

The examinations of joint fluid and blood serum, both bacteriological and serological, were made in the laboratory of No. 25 Stationary Hospital by Captain P. Hartley, R.A.M.C. (T.), to whom the writer's thanks are due.

References.—1. MM. Florand, Bezançon et Paraf., Bull. et mem. Soc. Méd. d'Hôp. de Paris, 1918, 3 S., xlii. 2. Dysentery: A Clinical Study, Lieutenant-Colonel Cowan and Captain Miller, Journal of the R.A.M.C., vol. xxxi., October, 1918. 3. Castellani and Chalmers: Manual of Tropical Medicine, 1391. 4. G. M. Dobrashian: Journal of the R.A.M.C., vol. xxx., 441, &c. 5. Major A. W. W. Ellis, C.A.M.C.: Personal communications as yet unpublished.

THE USE OF ANTI-DYSENTERY SERUM IN THE TREATMENT OF BACILLARY DYSENTERY.

A SERIES OF 341 CONSECUTIVE CASES TREATED IN MESOPOTAMIA, WITH TABULAR ACCOUNT OF THE INCIDENCE OF COMPLICATIONS.

BY W. E. WALLER, M.B., B.CH. OXON.,
CAPTAIN, R.A.M.C. (T.C.).

DURING the period from March 31st, 1918, to Dec. 31st, 1918, a total of 608 cases of dysentery passed through the wards of a stationary hospital in the forward area in Mesopotamia. Of these 140 were proved to be amœbic; of the remainder, 341 were either proved to be bacillary, or regarded as such on clinical grounds. The remaining 127 were mostly light and convalescent cases of a type too doubtful for special statistical purposes.

Table I. gives details of the bacteriological findings, and affords an index of their respective severity.

TABLE I.

Type.	No.	Treated by serum.	Not treated by serum.	Duration of acute stage.	Diet.
Clinical	133	63	70	16·1	5
B. Shiga	117	69	48	16·7	4
B. Flexner	70	11	59	11·0	0
B. Hiss Y	21	5	16	9·2	0

In this and succeeding tables a double Shiga and Flexner infection is classed as Shiga. The end of the acute stage is expressed as the day of the disease on which the stools were wholly fæcal, and reduced permanently to one or two in number daily. Lister Institute polyvalent anti-dysentery serum was given in 148 cases in the series, in addition to sodium sulphate given orally and to a carefully chosen diet.

As a routine, in fairly severe cases as soon as the diagnosis had been made on clinical grounds, 140 c.cm. of serum was given in three subcutaneous injections at eight-hourly intervals during the first 24 hours, whilst in cases of less severity 100 c.cm. in two subcutaneous injections only was given

during this period. In some cases serum had been given in the clearing station prior to admission to the stationary hospital, so that in Table II. the dosage and routine of administration are not uniform. In addition, owing to the comparatively short time during which patients can be kept under observation at a stationary hospital, statistics regarding the value of any special form of treatment are incomplete. Table II. is an analysis of all the serum-treated cases grouped according to the days of the disease when the initial dose of

TABLE II.

Day of disease serum started.	No. of cases.	Return to normal.	Total duration acute stage.	Unsatisfactory convalescence.	Died.	No. of cases.	Return to normal.	Total duration acute stage.	Unsatisfactory convalescence.	Died.
	Clinical.					*B. Flexner and Y.*				
1-3	3	9·0	12·0	0	0	5	5·0	8·6	0	0
4-6	17	10·1	15·0	2	0	5	5·9	9·6	0	0
7-10	26	9·6	18·1	2	1	2	4·5	13·0	0	0
11 onwards	17	13	29·05	1	2(a)	4	6·5	22·9	1	0
	B. Shiga.					*Summary.*				
1-3	7	7·6	10·4	0	0	15	7·2	10·3	0	0
4-6	30	9·5	15·5	1	0	52	8·5	13·3	3	0
7-10	22	12·1	19·5	2	3(b)	50	8·7	16·8	4	4
11 onwards	10	15·7	32·5	3	1(c)	31	11·7	28·1	5	3

(a) Two complicated cases, heat-stroke and uræmia. (b) Heat-stroke (c) Pneumonia complicated one case.

serum was given, the clinical and Shiga cases being considered separately, Flexner and Y together, and a summary including all the cases being appended. The column "Return to normal" indicates the number of days after the initial dose of serum to the end of the acute stage. The column "Unsatisfactory convalescence" indicates a tendency to chronicity or a failure to arrive at the stage referred to in the preceding two columns. Mortality is also indicated.

Table III. shows the same details in the 193 cases, nearly all of them much lighter in character than those described in Table II., in which dieting, and sodium sulphate given

TABLE III.

Type.	No. of cases.	Duration of acute stage.	Unsatisfactory convalescence.	Died.
Clinical...	70	12·3	5	2
B. Shiga	48	14·0	4	0
B. Flexner and Y ...	75	9·8	5	0
Summary	193	12·03	14	2

TABLE IV.

Day of disease serum started.	No. of cases.	Return to normal.	Duration of acute stage.	Unsatisfactory convalescence.	Died.
1- 3...	4	7·0	9·5	0	0
4- 6...	19	8·2	13·4	0	0
7-10...	10	9·2	17·2	0	0
11 onwards ...	7	9·8	21·8	2	0
Not given ...	50	0	15	10	0

orally, alone were employed. The column "Return to normal" is omitted, since most of these cases had received treatment by non-specific methods from the start of their disease.

Table IV. gives details of 90 proved cases of bacillary dysentery, all of no great severity, not necessarily consecutive, but occurring throughout the main series. Of these, 50 were treated by dieting and saline purgation only. The remaining 40 received, in addition, 100 c.cm. anti-dysenteric serum shortly after admission to hospital, in the manner indicated above. All the cases were uncomplicated by other diseases, such as malaria, but the locality, previous history, and question of travel and exposure before admission to hospital remain inconstant factors. The 40 serum-treated cases comprised Shiga (32), Flexner (4), and Y (4), and were therefore, on an average, of more severe type than the remaining 50, which included Shiga (26), Flexner (19), and Y (4), and one combined Shiga and Flexner case.

Though admittedly incomplete, these statistics tend to show that, in cases treated early by serum, the acute stage is of shorter duration, the tendency to chronicity less, and convalescence more satisfactory than in cases treated by serum late in the course, or by alternative methods.

It is for the clinician himself to decide at what stage of the disease serum treatment loses its efficacy. From observations on cases in which acute symptoms had persisted even up to 21 days the writer is of opinion that improvement frequently starts if serum is given where no appreciable improvement had followed simple dietetic treatment and saline purgation; this improvement is especially marked in pyrexial cases.

The Complications of Bacillary Dysentery.

Table V. gives details of the complications which were met with in the series, and also includes a list of the most important co-existing diseases.

It will be observed that diarrhœa, or periods of diarrhœa alternating with constipation rendering convalescence unsatisfactory, was noticed in 20 cases, whilst in an additional six the stools remained mucoid, various portions of the colon remained thickened and tender, and the disease showed signs of chronicity. Had it been possible to keep patients longer under observation these figures would, in all probability, have been much larger. Diarrhœa was much commoner in cases not treated by anti-dysenteric serum, or in those cases in which serum had not been given till late in the disease. A slight degree of diarrhœa persisting when the colon symptoms had subsided was common, but usually cleared up readily with careful dieting and with salol and bismuth salicylate.

Arthritis occurred in six of the series (1·2 per cent.) and constituted the most distressing and intractable complication met with. Table VI. gives details of the cases and shows the relation of the condition to serum injections.

The left knee was affected in all 6 cases, 100 per cent. The right knee, ankles, and shoulders were affected in 3 cases (50 per cent.), the manubrio-sternal and wrists in 2 cases (33 per cent.), and the left hip, sterno-clavicular, and interphalangeal joints in 1 case (16·5 per cent.). In the Flexner case (No. 5) there was a past history of rheumatism affecting the joints. In the remaining cases there was no such history, and gonorrhœa was excluded. The knee-joints showed synovial thickening and effusions, the latter always being sterile. The other joints showed thickening

TABLE

	Dysphagia.	Vomiting.	Hiccough.	Meteorism.	Hæmorrhage.	Perforation.	Chronic colitis.	Diarrhœa.	Typhlitis.	Appendicitis.	Liver abscess.	Dilated heart.	Endocarditis.	Thrombosis.	Carbuncle.	Furunculosis.	Sup. bursæ.	Skin abscesses.	Delirium tremens.	Fits.	Arthritis.	Serum sickness.	Conjunctivitis.	Bubonitis.	Malaria. (Clin.)	Malaria. B.T.	Malaria. M.T.	Heat-stroke.	Pneumonia.	Nephritis.	Amœbic dysentery.	Total cases.
Clinical ...	1	1	—	—	3	1	5	7	—	—	—	1	1	—	1	6	1	—	1	—	3	25	2	—	2	—	1	1	2	—	—	133
B. Shiga ...	—	2	2	2	2	—	3	7	1	1	1	4	—	1	—	3	1	1	—	—	2	47	1	—	2	3	3	2	—	1	1	117
B. Flexner...	—	2	—	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	1	1	5	—	1	6	—	—	—	—	—	3	73
B. Flexner Y	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	5	—	—	1	—	—	—	—	—	—	21
Totals ...	1	5	2	2	5	1	6	20	1	1	1	6	1	1	1	9	2	1	1	1	6	82	3	1	11	3	4	3	2	1	4	341*

* Three combined Flexner and Shiga cases counted under each heading.

TABLE VI.

No.	Type.	Day of disease serum started.	Day of commencement of arthritis.	No. of days pyrexia	Joints affected.
1	?	Not given.	14	15	Left knee.
2	?	18	18	37	Knees and ankles.
3	?	4	12	60	Knees, ankles, wrists, elbows, shoulders, sterno-clavicular, and manubrio-sternal.
4	Shiga.	Not given.	24	21	Left knee, left hip, left elbow, shoulders, manubrio-sternal.
5	Flexner	,,	11	0	Left knee.
6	Shiga.	20	15	63	Ankles, knees, wrists, shoulders, interphalangeal joints, wrists.

only, much of which appeared to be peri-articular, this being most marked in the case of the ankles. Treatment was disappointing, most reliance being placed on absolute rest to the affected joints, the electric-light bath, and large doses of salol internally. The administration of salicylates, iodides, or urotropin was useless in the ordinary doses. In all the cases a certain degree of thickening and restriction of movement of the joints concerned persisted when the patients were evacuated from the hospital.

Only in one case (3) did the commencement of the arthritis bear the same relation to the administration of anti-dysentery serum as in the cases of serum arthritis mentioned below.

Serum Sickness.

The total number of cases treated by serum injections was 148. In 82 of these (56 per cent.) serum sickness occurred. In all of the 82 a serum rash was noted, the average day of its appearance after the initial dose of serum being 7·2. The rash varied in character from an erythema to an urticaria, appearing first of all over the sites of the injections. In severe cases it became generalised and blotchy, often occurring in circinate patches with raised urticarial borders. In such cases there was usually deep conjunctival injection, the fauces were injected and œdematous, the voice husky, and a sense of oppression in the chest experienced. The condition was associated with moderate pyrexia, the temperature rarely rising above 100·5°.

In 18 cases (12·4 per cent.) the serum rash was followed, after a short interval by joint and muscle pains, accompanied either by a second pyrexial period or by an accentuation of the fever which had accompanied the rash, this second pyrexial period, lasting on an average 5·6 days, being of more severe type than that which accompanied the rash, and being often associated with a rapid pulse.

Serum arthritis started on an average on the 10·8 day after the initial injection of serum, the shortest interval being 7, the longest 15. In 10 of the series joint and muscle pains and stiffness, chiefly affecting the lower extremity, were experienced, the joints showing no organic change. In the remaining 8 cases there was actual peri-articular swelling about the finger joints, wrists, knees, and ankles, and in one case even of the sterno-clavicular and temporo-mandibular joints. The symptoms were usually accompanied by a second rash if the original rash had faded, or by an exacerbation of the rash if it still existed, the second rash always being urticarial whatever the nature of the initial rash had been. All serum manifestations cleared up very rapidly when the accompanying pyrexia had subsided and caused no disability. No example of accelerated or abnormal reaction, such as those described by Colonel E. W. Goodall, were noted, although some of the patients had received in the past injections of antitetanic serum; nor did any case of anaphylaxis occur.

An increased liability to intercurrent disease appeared to be present during the course of serum sickness. Thus subtertian malaria occurred during this period in three cases, in one case as a relapse, in the remaining two as the first indication of the disease in an active form, though there was evidence of past attacks. The importance of diagnosis in such cases is obvious. In those observed the unusual severity of the pyrexia, and the fact that it was associated with an apparent relapse of the colon symptoms, whereas constipation is more usual in serum sickness, drew attention to the condition. Similarly, during the course of serum sickness, in two cases, heat stroke occurred, although the temperature and wet bulb reading were falling at the time. One of these cases proved fatal. In one severe toxic case which was apparently progressing favourably a recrudescence started during serum sickness, was quite uncontrollable, and proved fatal.

In conclusion, I have to acknowledge my indebtedness to Lieutenant-Colonel H. J. Crossley, R.A.M.C., commanding the hospital, for his permission to publish this record, and to Captain C. C. Twort, R.A.M.C. (T.C.), and Captain W. McAdam, R.A.M.C. (T.C.), who carried out the bacteriological investigations.

References.—Goodall: THE LANCET, 1918, i., 323. Ballmann: Munchen. Med. Wchnschr., 1918, xxxi., 1129. Dorendorf: Med. Klinik, 1917, xiii., 519-525.

ŒDEMA OBSERVED IN A MONKEY

FED ON A DIET FREE FROM THE FAT-SOLUBLE "A" ACCESSORY FOOD FACTOR AND LOW IN FAT.

BY A. HARDEN, D.Sc., F.R.S.,
AND
S. S. ZILVA, D.Sc., PH.D.

(*From the Biochemical Department, Lister Institute.*)

THE indispensability of the fat-soluble A accessory food factor in the nutrition of the rat is now well established. There is, however, no information as yet available concerning the effect produced by depriving the food of other animals of this factor. This note describes some preliminary experiments instituted with the object of studying the influence of a diet free from the fat-soluble A factor on monkeys. These animals have proved to be very suitable for dietetic experiments. It has been shown by Hart and Lessing (1913), and Harden and Zilva (1919), that by feeding them on a scorbutic diet, scurvy closely resembling the human disease can be induced. It was therefore of interest to watch the behaviour of monkeys subsisting on a diet lacking the fat-soluble A factor.

The Experimental Diet.

Three female monkeys (Macacus rhesus), aged about 2 years, were employed. Each of these animals received the following daily diet: Boiled polished rice, 250–300 g.; "Marmite," 10 g.; salt mixture, 2 g. This diet, as will be seen, was free from the fat-soluble A factor. The rice and the "Marmite," which is a yeast preparation, had been tested on rats and found to be free from that principle. The "Marmite" served both as a source of the antineuritic accessory factor and as a nitrogenous supplement to the rice. As an antiscorbutic lemon-juice, from which the acids had been removed according to the method of Harden and Zilva (1918), was employed, a dose equivalent to 4 c.cm. of the original juice being administered daily to each animal. The diet was therefore complete in every respect, except that it lacked the fat-soluble A factor and was low in fat.

Progress of Experiments.

The experiments were commenced on May 16th, 1918. Monkeys 17, 18, and 19 weighed at the time 2460, 2240, and 3280 g. respectively. During the first two months they showed a slight decline in weight, but after that period this ceased and they maintained their weight. On Nov. 30th No. 17 received 10 g. of purified butter-fat and No. 18 10 g. of olive oil per day in addition to their daily ration, whilst the diet of No. 19 was left unchanged. This alteration in diet was introduced in order to see whether the addition of butter-fat would stimulate growth in No. 17 at this stage, whilst olive oil, which has been shown to be free from the fat-soluble factor, was given to No. 18 in order to ascertain the effect of the addition of fat in the absence of the accessory factor. No. 17, however, showed no tendency to grow after the addition of the butter-fat to its diet. It remained very thin to the end of the experiment, was lively, and showed no signs of indisposition.

Monkey No. 18 also did not grow after the addition of the olive oil to its diet. It differed from No. 17 in so far that it gradually developed the characteristics of an animal suffering from malnutrition—namely, staring coat, indolence, and general lack of alertness. This state of malnutrition

could not, however, have been due to a quantitatively inadequate diet, as the animal consumed its entire ration. This condition lasted until Jan 2nd, 1919, when the animal was observed at 11 A.M. to be very ill and was unable to sit up; it succumbed two hours later. Post mortem the animal was found to be in an emaciated condition, but nothing abnormal could be discerned.

Monkey No. 19, which remained on its original diet, maintained its weight until the end of January, after which it commenced to decline. Beyond this fall in weight nothing abnormal could be observed in the animal, its general appearance and deportment being quite normal. The loss of weight continued throughout the month of February. On Feb. 27th the animal first manifested well-pronounced œdema in the right side of the face. The condition improved slightly during the two following days, but on March 2nd the entire face, including the eyelids and tissues surrounding the orbits, were found to be very œdematous. On further examination well-marked œdema was found in the regions of the buttocks, arms, and the backs of the hands. The skin pitted readily on pressure and was not red. A sample of urine was passed directly into a clean vessel; it was pale yellow in colour and on examination revealed no albumin, either on acidifying and boiling or by the salicyl-sulphonic acid method. On March 3rd the œdema in the face was better. The urine showed a very slight turbidity on acidifying and boiling, but it had been collected through the perforated bottom of the case, and consequently had come in contact with the food. On the following day the œdema was again worse. A sample of the urine collected through the bottom of the cage again showed only a very slight turbidity on acidifying and boiling. The œdema persisted and became gradually worse. On March 1st the animal, for the first time since the commencement of the experiment, left some of its food uneaten; it developed diarrhœa, and by the 11th this had become very severe, and the animal was in such a very weak condition as to be unable to support its head, which showed a tendency to hang down. The œdema was, however, a little better than on the previous day. Knee-jerks were present; rectal temperature 98° F. The animal was then chloroformed owing to its distressed condition. At the post-mortem examination there was found a slight enlargement of the mesenteric glands; the right suprarenal adhered to the kidney, and in the lower part of it there was a small cyst which contained a thick opaque fluid, free from cells.

Monkey No. 17, which was in a lively condition but still very thin, was at this stage put on mixed diet (March 11th).

Results of Experiments.

All the animals had been kept for 198 days on the experimental diet before it was modified by the addition of butter-fat and olive oil. During the whole of that time, although they did not grow, they showed no signs of ill-health. As already mentioned, the addition of butter-fat to the diet of monkey No. 17 did not actually stimulate growth but kept the animal alive for 299 days, after which the experiment was stopped. The addition of olive oil to the diet of No. 18 did not prevent the animal from declining, and eventually succumbing, with no definite symptoms after 262 days. No. 19 first displayed symptoms of œdema 289 days after the experiment had been commenced.

As already noted, the diet employed, in addition to lacking the fat-soluble A factor, had also a very low content of fat and the effect of a low intake of this dietary constituent on monkeys is not yet known. These observations, therefore, can only be considered as of a preliminary character, and further experiments will have to be carried out in greater detail and on a larger number of animals before definite conclusions can be drawn as to the cause of the phenomenon.

Remarks.

Whether the foregoing results have any connexion with the œdemata observed by Bloch in underfed children or with "hunger œdema" it is impossible at present to say. Various experiments are in progress on the subject, but as they are necessarily of a protracted nature we considered it of interest to record the observations already made.

We wish to express our thanks to Dr. J. A. Arkwright for his valuable advice and criticism and for having carried out the post-mortem examinations.

References.—Harden and Zilva (1918): Biochem. Journ., xii., 259. Ibid. (1919): Journ. Path. Bact., xxii., 246. Hart and Lessing (1913): Der Skorbut der kleinen Kinder (Stuttgart).

MEDICAL MAYOR.—Dr. T. G. Lewis has been selected as Mayor of Newport (Mon.) for the ensuing municipal year.

SOME CURIOUS CASES OF VIOLENT EXCITEMENT.

BY A. L. TAYLOR, B.Sc., M.B. EDIN., F.R.C.P. EDIN.,
MEDICAL SUPERINTENDENT, CRAIGEND NEURASTHENIC HOME.

IN a series of almost 800 admissions to the mental ward of a general hospital in France it is not surprising that there should be a few patients of very uncommon types. The following seven cases, in which the leading disorder was a brief and violent attack of excitement, should be of interest to the medical profession, but more particularly to the psychiatrist and the medical jurist. Subjects of such disturbances invariably make their début in a criminal court, though perhaps later they may be confined in an institution for the insane.

The Cases Described.

CASE 1.—Gunner W.; trench mortar battery; aged 37; three years fighting in France. Admitted Nov. 21st, 1917, for observation of mental condition on account of some letters to his mother in which he said he was afraid that his old trouble was coming on again. The men in his own unit were unanimously of opinion that he was sometimes not "right in the head." The patient was a bright, good-looking, intelligent man, and said that ever since he could remember he had had a violent temper; he nearly killed his brother with a horse-whip at the age of 10, and was taken from school at 12 because of his dangerous propensities. He enlisted in the infantry at 16, and soon after was sentenced to seven years' penal servitude for setting fire to a stable. He attempted suicide at Dartmoor, and shortly after release got 18 months' imprisonment for housebreaking. More recently he has lived in America and has had several recurrences in which he has good reason to believe that he has committed murders. He came to France with the 1st Canadian Division, and was 14 days in hospital after being blown up at Ypres in 1915. He states definitely that at irregular intervals a desire to go off by himself comes over him and that at such times he will assault anyone without provocation. His attacks of violence are always preceded by severe headache, and he feels as though a wire was tightly twisted round his head. He never has any recollection of his conduct during the attacks, which are always less frequent when he is at sea. Family history shows an alcoholic father, an insane epileptic maternal aunt, a badly epileptic maternal cousin, and a brother who took fits in early childhood. This man was under my observation for a comparatively long time, but had no attacks, and was well behaved and useful as an assistant orderly.

CASE 2.—Sgt. H.; infantry; aged 35; 16 years' service in Regular Army; D.C.M. in 1915. Admitted to mental ward Feb. 4th, 1917, with the statement that before he was sent to the C.C.S. he had suddenly become violently excited, the attack evidently having been a very brief one. Gives a history of attacks of unconsciousness in 1908 and 1911 (while on reserve), and while at home on leave in 1915 fell down in the street and knew nothing for an hour. No aura, history of convulsions, or signs of hysteria.

CASE 3.—Pte J.; infantry; aged 33. Admitted June 28th, 1918, for observation because, when warned for duty with a working party and addressed as "J." and not as "Private J." he took the N.C.O. by the throat and knocked him down, afterwards making to shoot the party who came to the rescue. His history shows that he had heat-stroke at Singapore six years before (fell down suddenly, was unconscious for two hours, and ill for six weeks); two months after this "ran amok" twice in Yokohama and "laid out" a considerable number of Japanese; he then went to Australia and had similar attacks every six months or so; he knew when they were coming on and went off by himself into the bush. He never had any attacks before the heat-stroke, and alcohol had nothing to do with them. Was rejected for the Australian Army, but came home and joined the English infantry. It may be noted that the present attack occurred in hot weather.

CASE 4.—Gunner L., aged 43. Admitted Nov. 6th, 1917. Reported sick to the regimental M.O. and threw a Mills bomb at him. He was in a semi-conscious condition on admission to the field ambulance, recovered after about five minutes, and had no recollection of what had happened. He stated that he had had a similar attack during the South African war and several in civil life, his conduct having once led to a sentence of 14 days' imprisonment for suddenly and unreasonably attacking an acquaintance with whom he was walking along the street. Was invalided from Salonica after a similar attack. No aura.

CASE 5.—Pte. P., aged 19. Admitted May 8th, 1918, as he had behaved in a strange manner on April 15th, talking about a long march (which had not taken place) and threatening to shoot himself and all the other men in the tent; was very emotional next morning, and for the following fortnight was in an apathetic condition, from which he gradually recovered. His history showed that in 1916 when working as a riveter he fell down the funnel of a destroyer and landed on his head; ever since then he has had severe attacks of pain in the left temporal region, which when very bad are succeeded by periods in which he does not know what he is doing. On one of these occasions he tried to drown himself in the Tyne at Haddington. No abnormal sensory physical signs.

CASE 6.—Pte. B.; infantry; aged 20. Over two years fighting in France. Admitted June 18th, 1918. History of case is that in December, 1915, he had a sort of faint attack at a picture-house, a similar attack at Bruay in May, 1918, and while convalescent from a wound an attack of violent excitement, for which he was admitted to the mental ward. Was dull and confused on admission, but improved rapidly. On July 1st, 1918, after muttering to himself while apparently asleep, became very violently excited and did not settle down for nearly three hours, and not without an enormous amount of sedative; slept for a few hours and remained in a dull condition for a few days before he recovered his normal mental state. He showed numerous cutaneous areas of insensibility to pain.

CASE 7.—Pte. K., aged 26. Admitted Nov. 8th, 1916. Sent to the mental ward for observation because he was found wandering and unable to give any account of himself. Diagnosis of dementia præcox was suggested owing to his constant lassitude and disregard of personal cleanliness. His history is an extraordinary one: his father was a soldier and took him to India at the age of 3; he remained in India, enlisting in the infantry at 17; had a severe attack of heat-stroke in 1907 with pyrexia 108° F., and was discharged the service in 1912 because he was always in trouble, though he had obtained a first-class certificate in drill and musketry and second-class in education. When at home he again enlisted in another regiment, but after having been court-martialled four times was again discharged. Enlisted again in June, 1914, and when serving in France in 1915 was sentenced to two years' imprisonment for drunkenness and malingering; escaped from the military prison, got into the mental ward of a hospital, was labelled epilepsy at "D" Block, Netley, and again discharged the service. In January, 1916, joined a labour battalion, rose to corporal, was reduced for drunkenness, and sent to the regular line battalion in France in June, 1916, just in time for the first battle of the Somme, was buried by a shell, and thereafter sent to hospital for a week; subsequently his regimental M.O. certified that he was mentally unsound, after his being charged with drunkenness and discharging firearms in a billet; after this he became drowsy and confused, with visual hallucinations. Was perfectly well under my observation, and was an intelligent and rather attractive man. His attacks were always the consequence of drinking spirits, of which a very small quantity sufficed to produce violent excitement. He could drink moderate amounts of beer without evil results.

Remarks on Diagnosis.

In the above brief account negative facts, such as the absence of bad family history, the absence of organic nervous disease, or even the absence of physical signs which might arouse the suspicion of such disorders as general paralysis or chronic alcoholism have not been included.

Cases 1, 2, and 4 need little comment; they are interesting examples of men suffering from minor epilepsy, two of whom are fortunate in not so far having been permanently confined. Case 3 is identical with the last mentioned except for the important fact that the cerebral instability was produced by insolation.

In Case 5 it is difficult to settle the diagnosis between hysteria and epilepsy, as the initial head injury may have produced either. The case falls into the so-called epileptoid group of some writers, the difficult point being the absence of "objective" sensory disorders; the latter, however, can by no means be regarded as an essential feature of a traumatic hysteria, though admittedly extremely common in such cases. I am inclined to favour the diagnosis of hysteria, taking into account the youth of the patient, the emotional nature of the primary accident, and the absence of family history or any suggestion of previous epilepsy.

Case 6 is an extreme instance of hysterical excitement. I do not remember ever having had to give a patient so much sedative; it will be interesting to some to learn that the dose which finally settled the matter and produced sleep in 10 minutes was a hypodermic injection of ℥ii undiluted paraldehyde, which, given in the pectoral region, produced no trace of local irritation; quite apart from dealing with violent patients, this is a useful method of administering a nauseous drug.

Case 7 is extremely interesting, a primary attack of insolation producing a great susceptibility to spirits. The condition is that described by the alienists of the Victorian era as "mania a potu." This susceptibility of neurotic persons to alcohol seems to me to be the cause of many misleading statistics on the so-called causes of insanity which are published annually. The person who drinks large quantities of liquor produces bodily disease, but seldom chronic mental disease; on the other hand, the progeny of alcoholics have a very strong predisposition to functional nervous and mental disturbances. I have observed many times in the course of studying war psycho-neuroses that men who in their hale and hearty days were able to drink a bottle of whisky in 12 hours or less with comparatively little inconvenience are, when they become the subjects of functional nervous disorder, seriously upset by a few glasses of spirits; in many cases this has been prescribed by a solicitous friend as the medicine which is likely to do the unfortunate patient the most good.

To the foregoing collection of 7 cases a good many more similar ones could be added, each possessing its own special points of interest. I have offered these notes for publication in the belief that a record of unusual conditions, even if it does not lead to valuable original observations, is often of interest to medical men.

Liberton, Midlothian.

THE VALUE OF ANTISTREPTOCOCCUS SERUM IN INFLUENZA.

BY W. HUGHES, M.B., M.R.C.P. EDIN.,

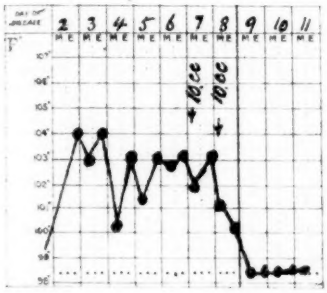
CAPTAIN, R.A.M.C., T.C., HOLBORN MILITARY HOSPITAL, MITCHAM, SURREY.

THAT the bacteriological reports of the recent epidemic of influenza have been conflicting is not to be wondered at when we have to deal with several organisms, each in itself capable of producing the pathological result. In one case the streptococcus, in another the pneumococcus, or again, in another the Pfeiffer bacillus, or all three may be present. In a mixed infection, whether the predominant organism is the principal factor, or whether it is a question of symbiosis is still, so far as the recent epidemic is concerned, undetermined. We know, however, that a mixed infection is usually more severe than a pure one. The discovery of a filterable virus and of a cocco-bacillus quite recently opens up the obscure fields of variants and pleomorphism. We know that in cultures the pneumococcus can sometimes grow in chains, and may show no capsule, and that some strains of streptococci may grow as diplo-streptococci, and may even show a capsule; and furthermore, agglutination tests have shown that the streptococcus mucosus and the pneumococcus are allied in some way. Hicks[1] has also shown that in cultures the *B. influenzæ* may appear almost like a coccus, in short chains, or in pairs. That there must be some hæmorrhagic factor at work is indicated by the frequent occurrence of epistaxis, hæmoptysis, menorrhagia, purpuric and petechial skin eruptions. As from most of my cases a diplo-streptococcus was isolated, probably the streptococcus mucosus, I was induced to try the effect of antistreptococcus serum. At first I used it only in those cases where pneumonia was definitely established. Later, when I saw the beneficial results in pneumonic cases, I adopted as a routine measure the injection with serum of all cases classified as influenza immediately on admission.

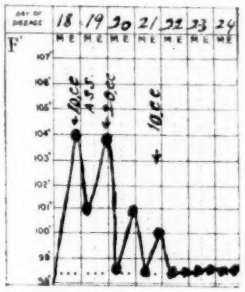
Justifiable Treatment.

The application of serum-therapy in a disease like the recent epidemic, the bacteriology of which was still undetermined, might obviously lead to the erroneous conclusion of "post hoc" being "propter hoc." The treatment is justifiable, however, when, as was the case in this epidemic, we are dealing with a mixed infection. Whatever organism may finally be adjudged to be the specific cause, the fact remains that in a mixed infection, if we can remove one of the factors which is intensifying the disease, we may

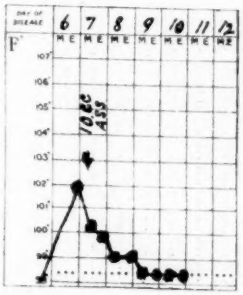
enable the patient to overcome the primary infection by his natural resisting powers. Thus antistreptococcus serum has been used for preventing or cutting short the duration of complications in small-pox, and also for combating the invasion of ulcerating pulmonary areas by streptococci in phthisis. The results have in many cases been successful and encouraging. The use of antistreptococcus serum in treating cases of influenza during the epidemic under notice is based on the same principle. That the results were in many cases striking and encouraging cannot be denied, might be explained when we use bodies of bacteria as antigens is possible, but not easy when the antigen is a specific exotoxin. In the latter case the antitoxin may, of course, acting as an excitant, produce some beneficial effect by inducing increased phagocytosis. In all these cases, too, some reaction due to protein therapy must be taken into account. On the other hand, treatment of cerebro-spinal fever with antimeningococcic serum was disappointing until homologous, especially univalent, sera were prepared. On the whole, however, the bulk of evidence is in favour of



CASE 1.—This case was treated with serum after five days' illness. The symptoms were severe, with profuse epistaxis. After the first dose of serum the epistaxis was checked, and the second dose soon brought the temperature to normal.



CASE 2.—Bronchial type with severe throat infection.



CASE 3.—Appeared very ill on admission with profuse epistaxis, which was checked by the first dose of serum.

especially when the patients were treated in the early stages of the disease, but other phenomena had to be considered before looking on it as being in any way specific.

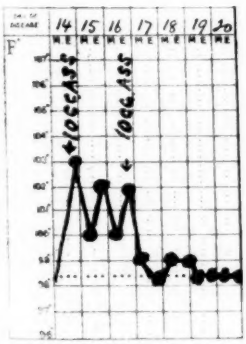
Observers' Results.

After the introduction of the antitoxin treatment of diphtheria many observers were struck by the beneficial results obtained when antitoxin was given in suspected cases of diphtheria which were subsequently found by bacteriological examination to be streptococcal, staphylococcal, or pneumococcal infections. Paton in 1902 considered diphtheria antitoxin to be of considerable use

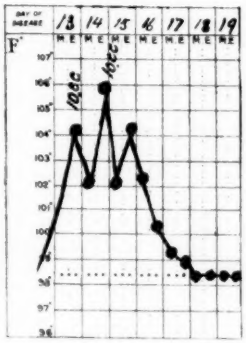
the fact that when an antiserum produces satisfactory clinical results it must be specific in character.

Precautions Advisable in the Use of Antisera.

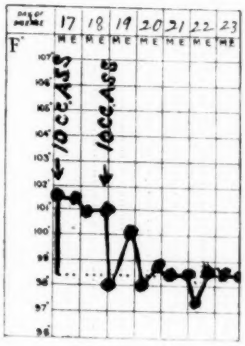
There are certain important points in connexion with antisera which we should always keep before our minds. These may be mentioned briefly. The serum of an animal immunised against an organism of the endotoxic group will, if the serum be collected at the proper phase, contain protective substances against that particular organism. These protective substances include bacteriolysin, precipitin, agglutinin, opsonin, and complement-deviation substances.



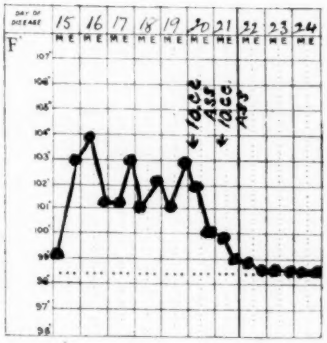
CASE 4.—Lobar pneumonia, right base.



CASE 5.—Lobar pneumonia, right apex.



CASE 6.—Lobar pneumonia, left base.



CASE 7.—Lobar pneumonia, right base.

in raising the power of resistance in infective conditions. He also considered the use of normal (untreated) serum of value in many other conditions, including tuberculosis. The serum was given by the mouth. Quite recently we have the report of a French physician, Folley,[2] claiming to have treated successfully with antiplague serum 500 cases of the epidemic influenza type (as this treatment was based on the finding of a cocco-bacillus allied to *B. pestis*, it may, of course, be specific). These results would lead us to suppose that the serum of an animal which has been immunised against a certain organism or toxin may contain not only a protective substance against that particular organism or toxin, but also a protective substance against other organisms of different species. That this phenomenon

So far, it is admitted generally that no anti-endotoxin in any appreciable quantity is formed. We cannot, therefore, look upon it as an antitoxic serum. If we assume that the most important substance is bacteriolysin we must conclude that the value of the serum, when used therapeutically, will depend on whether there is sufficient complement in that serum, or in the blood of the patient being treated, to bring about the desired reaction of bacteriolysis. The action of antistreptococcus serum, however, is difficult to explain as it does not produce bacteriolysis in vitro. On the other hand, Sir A. E. Wright[3] has conclusively shown that a so-called antiserum may not only *not* contain protective substances, but may even contain the very toxic matter injected for the purpose of

producing immunity; furthermore, he has pointed out that certain sera of this character, which have been used with some therapeutic success, produced their beneficial effect just like vaccines—e.g., the patient had an exacerbation of his symptoms, after the injection of serum, before improvement took place. These facts are very important and should teach us to be very careful about the initial dose of any antiserum derived from endotoxic organisms. Another important point, and one which is of special importance nowadays on account of the extent of serum therapy practised during the war for the treatment of tetanus, dysentery, cerebro-spinal fever, &c., is that of anaphylaxis.

Points to be Noted.

These facts should make us pay special attention to the following three points in using an antiserum derived from an endotoxic organism.

(1) The serum should always be kept on ice until required for use, as any complement in the serum is soon lost at ordinary temperatures. The reinforcement or replacement of the complement can, of course, be carried out by adding some fresh serum, if available, to the antiserum before injecting.

(2) The initial dose of serum ought to be on the small side, lest the serum act like a vaccine and so produce an excessive negative, or what Sir A. E. Wright[4] now prefers to call apo-phylactic, phase. If there is a considerable rise of temperature, especially if accompanied by an exacerbation of the other symptoms, within 24 hours after the initial dose, it is advisable to give the next dose of serum from a new stock or use that of a different maker. I have had only one case of this character (vide Case 5) which showed increased severity of symptoms after the first dose, improvement taking place when I gave the next dose with a different maker's serum.

(3) On account of the extensive use of serum therapy during the war in the treatment of tetanus, dysentery, cerebro-spinal fever, &c., the importance of attempting to find out from the patient whether he has ever had serum treatment before should be emphasised. If the patient has had serum injections within a comparatively recent period he should be desensitised by a preliminary small subcutaneous injection of serum (0·5–1 c.cm.) given four hours before the curative dose, or by Besredka's method, to prevent anaphylaxis.

Cases Treated.

Cases of influenza.—Sixteen cases of epidemic influenza in the early stages of the disease were treated with antistreptococcus serum, injected subcutaneously into the back below the scapula. The initial dose given was 10 c.cm., repeated every 24 hours if the temperature was still up. In most cases there was a fall of temperature to normal, and rapid recovery after one or two injections. In no case was more than 40 c.cm. required. The clinical manifestations of these cases varied considerably. The symptoms common to all were fever, headache, aching in the lumbar region and limbs, pulse rapid, low blood pressure, whitish furred tongue with clean edges, conjunctivæ often hyperæmic. The throat varied from a congestive condition, slightly œdematous, and purplish rather than red in colour, to a well-marked septic throat showing many yellowish patches from which a diplostreptococcus was isolated. The pulmonary symptoms ranged from a mild bronchial catarrh to a well-marked bronchitis, and many I looked upon as potential pneumonia cases, the respiratory murmur being feeble or inaudible, with well-marked crepitations over one or both bases, showing involvement of the alveolar tissue, and many rhonchi and râles. Epistaxis occurred in three cases and was of a profuse type; it was checked soon after the first dose of serum. All these cases made a rapid recovery and never developed pneumonia or prolonged bronchial trouble. Some specimens of the temperature charts are shown herewith.

Cases of pneumonia.—Fourteen cases of epidemic pneumonia were treated with antistreptococcus serum. Of these 11 were given the serum subcutaneously, and three intravenously. The 11 cases treated by subcutaneous injections were established cases of pneumonia on admission. The right base was involved in six cases, the left base in four, in three both lungs were involved, and one was a right apical pneumonia. Of these 11 cases two died. Of the two that died, one had a history of two previous attacks of pneumonia, and the other was a very virulent type, profoundly toxæmic, and complicated by hæmoptysis, small quantities of blood being continually brought up. In neither of these cases did the serum appear to have any beneficial result. On the other hand no bad effect was noticed. The maximum amount of serum given in any of these cases did not exceed 40 c.cm. The three cases treated by intravenous injections were admitted in a moribund condition, being profoundly toxæmic. One was maniacally delirious, and two were comatose. Although in two of these cases the serum seemed to bring the temperature down a little there was no improvement in the general condition and all three died. In all the fatal cases both lungs were involved. The serum used was obtained from two reputable makers and was polyvalent. Specimen temperature charts of some of the cases that recovered are shown herewith. There was no profuse sweating of the ordinary pneumonia crisis in those cases that recovered.

Conclusions.

There is no doubt that antistreptococcus serum aborted or considerably shortened the course of the disease in ordinary cases that were seen early. Whether any of these cases would eventually have developed pneumonia if they had not been given serum is, of course, impossible to say. The fact, however, that the serum was proved to have a beneficial effect in pneumonic cases justified one in thinking that it sometimes aborted a potentially pneumonic one. The value of the serum, speaking generally, depends on whether a streptococcus is implicated in any case, and on the treating of the patient in the early stages of the disease. In those very virulent and fulminating pneumonias characteristic of the epidemic the serum was disappointing. The administration of a preliminary dose of 10 c.cm. of antistreptococcus serum while waiting for the bacteriological report can do no harm in cases that are seen early, and may be, on the other hand, of great advantage to the patient. In the very grave pneumonic cases the danger of anaphylaxis or an unreliable serum should be carefully considered. I have to return my sincere thanks to my C.O., Colonel H. H. Dimmock, O.B.E., I.M.S., commandant of the hospital, for the great interest which he took in these cases and for permission to publish these notes, and to Dr. P. W. Nicol, bacteriologist to the hospital, for his valuable assistance and reports.

Since this paper was written Thomson[5] has pointed out that a strain of streptococcus isolated from a case in the recent epidemic was found by him to be an extremely small coccus and in his opinion capable of passing through a filter. He also found it to be hæmolytic and very toxic.

References.—1. THE LANCET, 1919, i., 420. 2. THE LANCET, 1919, i., 656. 3. Studies on Immunisation, 306–313. 4. THE LANCET, 1919, i., 490; Bosanquet and Eyre: Serums, Vaccines, and Toxins. 5. THE LANCET, 1919, i., 1107.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE ILLUSTRATING THE USE OF CARDIAC MASSAGE IN CIRCULATORY FAILURE FOLLOWING THE ADMINISTRATION OF CHLOROFORM, ETHER, AND OXYGEN.

BY M. J. PETTY, JUN., M.B., B.C. CAMB., F.R.C.S. ENG., SURGEON TO THE MODEL INSTITUTE OF THE RAWSON HOSPITAL, BUENOS AIRES.

IN the following case it is interesting to note that syncope occurred twice, and on each occasion responded to direct treatment. Special attention is directed to the force with which the massage was performed, and also that in this case it was seemingly advisable to continue working until the normal rhythm of respiration was re-established. In common with other cases who have suffered from this accident, the period of post-anæsthetic unconsciousness was much longer than that due to five minutes' anæsthesia, for the patient was comatose during 12 hours. The total period during which there was no cardiac action was 6¾ minutes.

The Case Described.

The patient, a man of 54 years of age, was diagnosed provisionally as a case of cancer of the stomach; since no tumour was palpable it was probably not too advanced for operation. His general condition was fairly good, the pulse-rate being about 84, but the arteries were tortuous and somewhat hard, hence the possibility of some untoward event during the administration of a general anæsthetic was foreseen. Preparation for the operation consisted in giving

a purge, a stomach wash-out, and an enema on the morning of the operation. The apparatus for the administration of the anæsthetic was the German Roth-Dräger machine, which gives a continuous and easily regulated flow of chloroform, ether, and oxygen. The small respiratory abdominal excursion it evokes makes it an ideal apparatus for abdominal surgery. At 11.30 A.M. the induction of anæsthesia was started and within a few minutes the patient was receiving 60 drops of chloroform and about 150 of ether per minute. No struggling occurred during this period. At 11.35 A.M., being informed that the patient was ready for the knife, I started making a supra-umbilical para-median incision, when I noticed that no blood oozed into the wound, and at the same time the anæsthetist informed me that the man had ceased to breathe. It was evident that the state of affairs was even worse, for the patient was very pallid, his pupils were widely dilated, and other doctors present could feel no radial or carotid pulse. Artificial respiration was immediately performed, injections of caffein, strychnine, &c., were given, but to no purpose, for the pallor became more marked and the glassy look in the patient's eye more ominous. The only result was a respiratory grunt when the thorax was compressed. Placing a sterilised towel over the præcordium neither I nor my colleague could detect any cardiac sounds. Meanwhile an intravenous injection of caffein had had no effect. At 11.40 A.M. I determined to massage the heart through an incision in the linea alba. I felt for the apex with the tips of my fingers. Finding it flaccid and seemingly empty, I waited a few seconds for some slight contraction to take place, but since no such movement was felt firm pressure was made with fingers stroking the heart from the base towards the apex and upwards against the præcordium at the rate of 30 to the minute. The amount of force used was considerable; if the diaphragm had not been tendinous at this point my fingers would probably have passed through into the thorax. At 11.41 A.M., after about 30 seconds of rubbing, violent cardiac contraction occurred, startling me by its intensity. The massage was stopped 15 seconds after the heart had started to beat; but meanwhile the fingers were kept in contact with the diaphragm. The beats were very irregular, and suddenly, at 11.41½ A.M., another cardiac syncope occurred. Immediately massage was restarted, but no response was obtained for a whole minute. When the heart beat again I determined not to stop until normal respiratory movements were fully established. Once this took place the wound was sewn up in three layers and the patient hurried to bed.

The treatment now consisted in warming up the patient and sustaining the heart. Two-hourly injections of 5 c.cm. of a 10 per cent. solution of camphorated oil and Murphy's proctolysis were administered. At 1 P.M. movements of the eyeballs, then of the eyelids, and finally of the limbs, took place. It was evident that the patient was slowly regaining consciousness. Oxygen was still being given. At 5 P.M. the patient was still unconscious, and, according to the nurses, had been so violent that he had been tied down to the bed. All the muscles were rigidly contracted, the position of the patient being somewhat similar to that of tetany. This spasm was soon overcome by an injection of morphia and strychnine given simultaneously. About midnight the first reasonable words were spoken by the patient, the oxygen was stopped, and the patient fell into a quiet sleep. At 11 A.M. the next morning the patient looked pale; his pulse was good, and he did not complain. On the morning of August 15th the stitches were removed, the wound healing per primam.

The lesson which I should be inclined to draw myself from this case is a practical one. If, on making an incision for a surgical operation, no oozing of blood occurs and the pulse should be found to be absent, there is an indication for immediate heart massage.

PERFORATION OF THE CÆCUM BY A PIN: DEATH FROM GENERAL PERITONITIS.

BY JOHN A. C. MACEWEN, M.B., C.M., B.SC., F.R.F.P.S. GLASG.,

VISITING SURGEON, GLASGOW DISTRICT HOSPITALS; ASSISTANT SURGEON, GLASGOW ROYAL INFIRMARY; HONORARY SURGEON, ERSKINE HOSPITAL FOR THE LIMBLESS, ETC.

THE writer has previously reported cases of perforation of the appendix by foreign objects, but, fortunately, in most of these the appendix and termination of the cæcum formed the contents of a scrotal hernia, and the peritonitis was accordingly circumscribed. In this case matters were unfortunately otherwise.

The patient, a soldier, was admitted to hospital in extremis. Very little history was obtainable, save that he had been ill for a week. Advanced general peritonitis was obvious. The abdomen was opened, rapidly cleaned out, and the source of mischief was immediately ascertained to be a pin embedded in the cæcum, the point of which had caused a perforation close to the base of the appendix, through which it projected. The pin was removed and the perforation closed by a stitch, but, in spite of every endeavour made to restore the patient, he died about an hour after the operation.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

The Reclassification and Treatment of Pensioners.

A MEETING of this society was held on Oct. 27th, Mr. V. WARREN LOW, the President, being in the chair.

Colonel A. L. A. WEBB, A.M.S., opened a discussion on the Reclassification and Treatment of Pensioners. He enumerated the various duties which were allocated to the headquarters of the Medical Section of the Ministry of Pensions. These consisted of: (1) provision for reclassification and reboarding and of the personnel connected therewith; (2) provision for treatment; (3) the establishment of convalescent centres; (4) provision of accommodation and supplies, which was passed on to the Army Service Corps; (5) the establishment of a Medical Intelligence Department. The convalescent centre branch was organising big centres for convalescents, and for the training of those who were prevented from following their original occupation. These were under the supervision of medical officers, but were also in the hands of skilled instructors. Some five or six such centres were being organised and should relieve the congestion of beds and of discharged soldiers who were waiting outside institutions. The Medical Intelligence Department was concerned with gaining information of the number of boards necessary and the number likely to be required, with noting any modern findings, either overseas or at home, with the compiling of statistics, and with intelligence generally. The number of boards which were being held was very large and amounted to about 16,000 a week for ex-soldiers other than officers. Cases of officers were only recently being surveyed, but in the case of other ranks this had been going on for some time. Appeal boards were being organised, which, it was hoped, would remove a good deal of dissatisfaction on the part of the ex-soldier.

Organisation of Treatment.

Dealing with the organisation of treatment, he said that an enormous number of cases fell into three groups, an orthopædic group, neurasthenia, and tropical diseases. An officer was being appointed on the staff of each regional commission with special experience of each of these. It was the duty of this officer to investigate his region and see all special cases, to advise on the formation of clinics, and in the appointment of suitable men, and to determine and advise whether a man should remain an out-patient or become an in-patient. The Ministry had a series of hospitals and were now adding to them some 10 or 12, which were being taken over from the army. It was thought at first that the patients in those hospitals would be discharged from the army and would then come under the Ministry of Pensions, but it had been arranged for the Ministry to take over the patients in the hospitals as patients under the Ministry of Pensions, in order to secure continuity of treatment. With regard to orthopædic cases special centres were arranged and radiating from them orthopædic clinics, under the medical control of an orthopædic surgeon and under the administrative control of the Regional Commission and his D.C.M.S. It was hoped to develop similar clinics for neurasthenia. Powers would be given to the Commissioners to appoint referees and a considerable portion of the staffs of necessary hospitals.

Discussion.

Dr. R. M. WILSON said that there were at present a very large number of men in this country so depressed by the belief that they were the victims of disease of the heart as to be afraid to pursue their callings, and yet in many cases they were only victims of a system which had accepted a symptom as a diagnosis. Sir James Mackenzie had always refused to regard cases of "soldier's heart" as heart disease.

He had declared, indeed, that the breathlessness, the giddiness, the palpitation, and the so-called heart pains were but the signs and symptoms of exhaustion, and that the disordered action of the heart was probably due indirectly to some more or less chronic infection. Later work had shown that this form of so-called heart mischief often followed trench fever, malaria, dysentery, and other infectious states and the classification of such cases as heart conditions was quite erroneous; they should be reclassified according to their proper diseases, treated, and if possible cured. The tests of capacity, of which so much had been written lately, were apt at times to become misleading. While it was doubtless true that the state of the heart could be measured in terms of the owner's capacity for work, it was equally true that both that capacity and that state varied with the amount of poison present. He would be a strange physician, for example, who suggested that because a victim of pneumonia was unable to leave his bed on the fourth day of the attack, therefore his heart was functionally inefficient, and who granted a pension on this idea. That case, of course, was an exaggeration, but it served to show how dangerous were mere functional tests of capacity so long as they left out of account the fundamental cause of the symptoms being investigated; in fact, the moment such tests were used to determine the degree of disability they became a snare. This degree could not be estimated until the first cause of the disability had been found and treated. The Ministry of Pensions should refuse to accept a diagnosis of D.A.H. or cardiac neurasthenia, and should demand a fundamental cause or, failing the discovery of this, evidence that a thorough and complete search had been made. In the speaker's experience a cause would be found much more frequently than might be expected. There could be no doubt that such a reclassification would be abundantly justified by the results it achieved.

Major W. BYAM said that he had recently been able to obtain experimental evidence that cases of neurasthenia and D.A.H. may be infected, and that these symptoms were due to actual infection and were not after-effects. A patient with trench fever, whom a prominent neurologist had pronounced to be suffering from neurasthenia, was utilised. By means of the fæces of lice which had fed on this man he had been able to convey to a volunteer trench fever, and subsequently to pass this on in the same way to a third man. The lice had previously been proved to be non-infected. Another instance was that of a man who was very slightly ill with occasional slight rises of temperature. A year and three months before the man had had trench fever. The excreta of lice which were fed upon him were inoculated into a healthy volunteer, who developed acute and typical trench fever. In this case also the disease was afterwards transmitted to a third man in the same way. Another example of the way in which such symptoms were due to actual infection was in cases of malaria. The infection could be demonstrated by splenic puncture.

The PRESIDENT referred to the difficulties which beset the proper pensioning of ex-soldiers and to the ex-soldiers' suspicions that they were being let down. A good deal of a man's capability depended upon the man himself. One man with a small anatomical lesion might be functionally incapable, whilst another might acquire a considerable capacity for work. He suggested that if the pension took the form of a capital sum it might lead to quicker functional adaptation on the part of the pensioner. The creation of pension agents or pension attornies, as occurred in America, should not be allowed.

Dr. CAREY COOMBS said that in Bristol the entire profession had combined to organise a system whereby they hoped that by working from below they would be able to meet the organisation of the Ministry of Pensions working from above. The ex Service man looked on all Government officials as paid to "do him down." It was possible by means of an organisation of quite a simple kind to enlist the whole of the profession in the treatment of the ex-soldier. The man's own doctor should have at his back a suitable set of consultants, hospital accommodation, and an administrative officer. In disordered action of the heart there were two other factors in addition to the continued infection. The Americans, who had had an opportunity of examining their men before entering the army, had found a considerable number who were predisposed to this symptom. The third factor he could only call anxiety neurosis. This condition of the heart was met with in the civilian population and in soldiers who had not been out of the country, in both of whom any special infection could be excluded. It was necessary to have places where men with this symptom could be sorted and treated; otherwise they would become both a continued charge on the nation and useless citizens.

HARVEIAN SOCIETY OF LONDON.

Gastric Ulcer.

A MEETING of this society was held on Oct. 23rd, Dr. JAMES TAYLOR, the President, being in the chair.

Sir BERKELEY MOYNIHAN gave an address on the Diagnosis and Treatment of Gastric Ulcer. He said that the subject of gastric ulcer should be ruthlessly revised in the light of the modern work of the radiographer and surgeon. An accurate landmark of the position of the pyloric opening was the pyloric vein, for it indicated the gastro-duodenal junction in 90 per cent. of the cases. The symptoms of gastric ulcer differed from those of duodenal ulcer, as did also the complications and sequelæ. Moreover, carcinoma was a common event in gastric ulcer, but very rare in duodenal. Duodenal ulcer he regarded as common and manifesting such a definite train of symptoms that its diagnosis could be made with considerable assurance, whereas gastric ulcer was comparatively rare and very difficult to diagnose with accuracy.

Symptoms.

Pain was of prime importance. It occurred with great regularity, usually within an hour or an hour and a half after food. In 66 per cent. it had occurred within an hour and a half. In duodenal ulcer, on the other hand, it followed two hours after food in 80 per cent. In gastric ulcer there was relief before the next meal was taken; in duodenal ulcer the pain continued until food or soda were taken or until the stomach was relieved of its contents. With a heavy meal the pain was later in duodenal ulcer. If the ulcer were near the cardia the pain might at once be made worse, was shorter in duration, and more prone to recurrence. Exceptions to the variety of pain usually met with in gastric ulcer occurred in the presence of adhesions, subacute perforation, stenosis, and erosion of the liver or pancreas. There was then a tendency for it to appear earlier. Severe pain in the back was complained of when the pancreas was eroded, and in 17 out of 23 such cases it was the chief complaint. Before the onset of pain enervation, lassitude, and disinclination for exertion were often met with. The regular rhythm of food, comfort, pain was all-important in the diagnosis. If there were any caprice it was almost certain that there was no organic lesion in the stomach. Gastric ulcer was twice as common in men as in women.

Vomiting was infrequent, occurring in only about one-fifth of the cases, and even with stenosis was little marked.

Hæmatemesis occurred in 25 per cent. The worst cases of hæmatemesis were met with in conditions other than gastric ulcer, and especially in splenic anæmia. When a patient complained of chronic dyspeptic symptoms and the gastric mucosa was found to be weeping blood it was not due to any organic lesion of the stomach itself, but to some lesion in the intestine more remote.

X ray examination was worth all the other methods of examination put together, and enabled a confident and certain diagnosis to be made in 90 per cent. It afforded signs both direct and indirect. The direct sign was that the ulcer with its cavity could be seen; the indirect resulted from spasm occurring either in the segment of the stomach at the site of the ulcer or in a neighbouring segment. X rays showed the stomach almost bisected, and this appearance was almost permanent and persistent. It was unalterable and remained in the same position and of the same size and depth.

Chemical.—Hyperchlorhydria was not constant. In 40 per cent. there was an excess of hydrochloric acid, but in 10 to 20 per cent. there was hypochlorhydria. Excess of hydrochloric acid was also met with in cholelithiasis, chronic appendicitis, and in many other conditions, and he placed little reliance upon it.

Epigastric tenderness was nearly always present, but was also often present in other conditions. Murphy's sign, described on the right side in cases of cholelithiasis, could

not infrequently be elicited on the left side in gastric ulcer. There were more mistakes made in the diagnosis of gastric ulcer than in any other abdominal disease. In appendicitis there was a pyloric blush, the pyloric end of the stomach contracted irregularly, and there was a chain of enlarged glands along the greater curvature of the stomach; with these three signs there was nothing wrong with the stomach, but the disease was in the appendix. The symptoms of a gastric ulcer were accompanied by induration and congestion around the ulcer and a copious deposit of fat at its base, by infection and enlargement of the sentinel gland, by spasm, and by altered secretion. All these alterations in the ulcer, in the musculature of the stomach, and in the secretion were present when symptoms were aroused. Similar conditions arose when the stomach was affected by other diseases, by distal irritation. The mimicry had therefore a rational explanation. It would be well for some time, if only for disciplinary purposes, to refuse to accept the diagnosis of gastric ulcer unless it was displayed by X rays or by excision through the abdominal wall.

Treatment.

Medical treatment was directed towards reduction of acidity, but this was not enough to cause or even to help an ulcer to heal. Medical treatment occasionally led to a cure, for, post mortem, a few ulcers had been found healed. Before an estimate could be made of the value of medical treatment the ulcer should be seen by X rays before it was begun and demonstrated as healed afterwards. An ulcer did not long remain healed, for attacks recurred. Moreover, there was no chance of healing except by treatment continued over many weeks or months. By healing, too, a condition was often produced which called for surgical treatment for its relief.

The operation usually performed had been gastro-enterostomy. It drained a blocked stomach, and was said to have a physiological effect by allowing the contents of the intestine to enter the stomach. If the ulcer were distal to the gastro-enterostomy opening the result was probably satisfactory; if proximal it could be of little value, for he had little belief in the physiological effect. Gastro-enterostomy alone would not cause healing of or prevent the development of a gastric ulcer. Carcinoma was a real danger; 50 per cent. of gastric carcinomata developed in simple ulceration. He had abandoned gastro-enterostomy altogether for gastric ulcer. Excision of the ulcer he regarded as unsatisfactory. Balfour's operation in which a cautery was used was more satisfactory, but there was a better. For some time he had employed partial gastrectomy. It obviated the chance of recurrence. Of 49 ulcers removed by this operation, three had shown evidence of early carcinoma. With very large ulcers partial gastrectomy could not be employed, and total gastrectomy was a very serious operation. For these he employed the Y-shaped loop operation and had thereafter fed the patient through the jejunostomy opening.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

Medicine and the State.

THE opening meeting of this society for the present session was held on Oct. 14th, under the presidency of Dr. A. BURTON, of Cromer.

Sir WILMOT HERRINGHAM gave an address on the Relation of the State to the Medical Profession, and described the Glasgow scheme for a public medical service, which had been the subject of a leading article in THE LANCET of Oct. 11th. The following advantages were, he said, indicated as likely to accrue to the general practitioner if such a medical service, based as it was on the R.A.M.C., were adopted: (1) He would have a fixed salary and would be relieved of the burden of book-keeping and the worry of bad debts. (2) Regular annual leave, with the provision of a locum-tenent, would be a great desideratum. (3) An opportunity would be given for occasional "study-leave" to attend post-graduate classes. (4) It would lead to a greater independence in his relations with patients, and would raise the standard of the profession.

Certain difficulties and disadvantages of the scheme were alluded to. In the Glasgow medical service the senior medical men would have the rank of colonel, and pay of £800–£900 a year. The speaker stated that the proportion of colonels to junior officers in the R.A.M.C. was 1 to 12; but if this scheme was adopted there would be 400 colonels to every 1000 officers between the ages of 25 and 60, and 1 colonel to every 2 officers over that age. This would necessitate a great increase of pay, and he did not believe that the Government would ever consent to pay a civilian medical service at a higher rate than that of the R.A.M.C. The chief crux, however, seemed to be the question of promotion, which in the lower ranks would depend on the goodwill of the senior officers, and few young men in general practice would care to be judged as to their fitness for promotion by senior general practitioners. Probably the criterion for eligibility for promotion would come to be, as in the army, a capacity for sending in reports. The tendency in Government services was for promotion to go mainly by seniority. Not long ago an attempt was made to adopt a system of selection by merit in the R.A.M.C., and the War Office published a list of men so promoted. This effort on their part, however, was received with such dissatisfaction in the service that the list had to be amended. Any scheme in which favouritism would be likely to play a part would never be received favourably by the civilian medical profession.

Would such a scheme be for the advantage of the profession or not? To answer the question it would be well to compare the standard of practice in the R.A.M.C. and in civil life. In Sir Wilmot Herringham's opinion the standard is unquestionably lower in the R.A.M.C. than it is in civilian practice. The consulting surgeons who went to France had to raise the standard of surgery to that of civilian life. The R.A.M.C. surgeons were only second class, and as to physicians—well, they hadn't any. The treatment of the army in this campaign has been of a far better character than that of any army previously in the world's history, and that was due to the fact that the medical and surgical attendance on soldiers was in the hands of civilians. The road to success in the army was, not to try to do things better than other people, but to do just enough routine work to escape censure. The very worst atmosphere for any scientific profession was the atmosphere of obedience.

The objection of the general public to the proposed medical service would be that they would be afraid of its interfering with the "choice of doctor," and that it would lead to greater independence of the doctors—one of the points most in favour with the profession itself.

Suggested Improvements in General Practice.

Having arrived at the conclusion that the Glasgow scheme would not meet with favour from the profession at large, the general public, or the Government, the speaker made certain suggestions as to the improvement of general practice as it now exists. He pointed out that a large part of general practice now consisted of insurance patients and that the panel system had delivered the doctors from the tyranny of the clubs. He suggested the following improvements in general practice: 1. Greater facility for consultation; this would be easy enough to arrange in towns, but in country districts there would have to be some sort of scheme of itinerary consultants. 2. Increase of hospital accommodation. There were now enormous "waiting lists" at all general hospitals of people waiting for what he called "enabling" operations—e.g., for hernia, varicose veins, &c.—whose unemployment caused a great drain on the public purse. He suggested that more use should be made of the Poor-law infirmaries, which were in many cases quite up to date in their equipment and staff. There was also much need for hospital accommodation for people of moderate means. The very rich and the very poor were well catered for in sickness, but persons of moderate means were at a great disadvantage at present. He suggested some such scheme as that which he had seen at a hospital in Cologne for paying patients, who were divided into three classes according to their means: (*a*) those requiring two rooms, (*b*) those satisfied with a single room, and (*c*) 8 to 10 persons in a ward together. 3. Insurance patients should be able to obtain the services of pathologists, who should be Government officials, paid a sufficient salary by the State, and not merely "sucking physicians."

In conclusion he gave it as his opinion that England had fallen behind in experimental science, and urged a greater attention being devoted to this subject.

Reviews and Notices of Books.

Roentgentherapy. By A. F. TYLER, B.Sc., M.D., Omaha, Nebraska. London: Henry Kimpton. 1919. Pp. 162. 13*s*.

THIS volume is of importance to radiologists if only because it is based on the use of the Coolidge tube entirely, which, if we understand the author aright, he holds to be applicable to every case suitable for X ray treatment. The general principles of his system consist in the employment of very highly penetrating rays,—the tube resistance equivalent to about 9½ inches of air,—filters of 5 mm. to 7 mm. or more of aluminium, fairly long exposures, and heavy currents. Such methods are common enough in the treatment of deeply seated lesions and certain cases of more superficial malignant disease, but it is doubtful if the technique of radiologists in this country is at all similar for dermatological cases. This is where the peculiar interest of this volume lies, and if the author's contentions are substantiated it will mean a considerable addition to the value and uses of the X rays in therapeutics. On general principles we favour the use of hard tubes and thick filters as giving a more efficient type of radiation and a greatly diminished risk of the treatment being interrupted by X ray dermatitis; but in the more superficial lesions the rule has been to use tubes of medium hardness, or even distinctly "soft" under special circumstances. We may quote the author's technique for epilation in cases of ringworm as an instance of how his methods differ from those usually employed. "One should use a 9½" spark gap, 5 millimetres of aluminium and leather filter, and 5 milliamperes current, 10 minutes over each area until the entire scalp has been covered." These directions, of course, lack completeness, but they serve to show the general trend of the author's methods by which he claims to get satisfactory results. How far these methods will commend themselves to British radiologists remains to be seen, but they appear to be worthy of investigation.

Notes on Galvanism and Faradism. By E. M. MAGILL, M.B., B.S. Lond. Second edition. London: H. K. Lewis. 1919. Pp. xvi. + 224. 6*s*.

THIS volume was reviewed in these columns shortly after its first appearance. Its success is evident from the fact that the first edition was twice reprinted. In the new edition the author has taken the opportunity of making alterations and additions by way of bringing it up to date, and enhancing its value in other ways. It is an excellent book for those nurses and masseuses who have to carry out the directions of the electro-medical specialist.

Allgemeine Prognostik. By Professor Dr. THEODOR BRUGSCH. With 13 illustrations. Berlin and Vienna: Urban and Schwarzenberg. 1918. Pp. 498. M.24, paper; M.29, bound.

THIS work does not treat of prognosis in disease, but rather in apparent health; it resumes, and advances, indications of constitution, of vulnerability, of diathesis, making much of the fact that health and sickness are seldom clearly differentiated the one from the other. To quote the sub-title, its subject is "die Lehre von der ärztlichen Buerteilung des gesunden und kranken Menschen." The author's inspiration to write pretty clearly came by way of Rokitansky and Beneke. In this epoch of bacteriological enthusiasm it will not have escaped notice that several of the former's ideas, and some of the latter's laborious work, have been rather remarkably confirmed since their day by the revelations of radiography. The small median-placed heart of the consumptive, as Beneke described it, can now be seen *intra vitam* well enough through the X ray screen or at least on the X ray plate. In the first part of his book Professor Brugsch painstakingly amplifies all such confirmation, working it out to interesting conclusions. In the second, the effects of the development and functioning of the abnormal anatomical structures are considered under the usual main divisions, circulatory, respiratory, digestive, excretory, ductless glandular, and so forth. This section contains, however, much less of original research. There are two classes of readers who should be immensely interested in this work, at all events in the first half of it. They are, firstly, medical biometricians; and secondly, old pupils of Sir Arbuthnot Lane who remember their master's interesting observations on the effect of certain occupations upon bodily structure. It should also have an enlivening influence upon certain physicians who are apt to sit at the feet of the bacteriologists with a tightness which is not warranted by results. The discrediting of a thorough-going infection theory by the phenomena of war tuberculosis forms a recent example. Works like the present one show that if study of specific external noxæ is best left to specialists, there is much of importance concerning the invaded organism that is not to be got either from physiologists or physicists.

JOURNALS.

IN the *Military Surgeon* (Washington, D.C., U.S.A.) for September, Major C. F. Tenney tells how the officers were definitely and progressively educated in a base hospital. Every Wednesday evening there was a parade meeting at which one of the departments gave an account of its interesting cases, which were then discussed by the other officers. Between 11 and 12 on Tuesday and Thursday "ward walks" were held, and short clinical lectures and demonstrations of novel or special treatments were given. At the same hour on Monday, Wednesday, and Friday, similar visits were paid to the pathological laboratory and X ray room. Friday afternoons saw a Medical Service Conference, when possibly the administration of the hospital was criticised and when perhaps a lecture on malaria or some other emergent disease might be given. The officers in charge kept to the same wards, but the others changed round and so did not get stale. Officers did their work better and with more enthusiasm. They knew better where to get help and that help was more readily rendered. We commend this paper to all officers commanding hospitals.

Major E. H. Schorer and Agnes S. Ruddock, writing from the Laboratory of the Embarkation Staff at Hoboken, N.J. (the Southwark side of New York), tell how many diphtheria carriers there were in the troops going overseas, of whom 1,833,000 passed through New York, and how many there were amongst the patients returning, and how the carriers were found. It takes good organisation to capture, as they did, 640 carriers from amongst 50,000 patients. They stained the smears from the cultures with Neisser, counterstaining with aqueous saffranin, which gave "bright blue granules in a pink bacillus." The personnel of the hospitals had twice as many carriers per cent. as had the patients.

Lieutenant-Colonel E. M. Colie, Jr., tells of his experience in France in a hospital-train built by the North-Western Company. He had 16 cars; the train normally carried 360 bed cases, but he could give places to 740. Water was apt to run low, though they had 100 gallons in each car (for 36 beds in three tiers). Soup with vegetables was the general food, and was given as soon as possible. Blankets and other equipment had to be carefully watched during long waits in dark sidings if the trains were running empty. At first the train staff consisted of orderlies; later nurses were supplied, and Colonel Colie remarks that, though they did their work excellently, he does not think they did it better than the men.

A Bill has been introduced into the Senate of the United States to punish anyone who uses a dog for experimental purposes in the District of Columbia. It is aimed at vivisectors, and is buttressed by statements of the friendliness of the dog to man and a recital of canine services in the war.

La Presse médicale d'Egypte has resumed publication after an interval of five years, under the editorial direction of Mr. H. Maraspini, member of the Société Française d'Oto-Rhino-Laryngologie, assisted by a distinguished committee representative of all branches of the profession in Egypt. It is to appear fortnightly at a cost of 80 centimes and consists of 16 pages of much larger size than is customary for scientific journals, but is to be conducted on usual lines, consisting of editorials, original articles, reviews, and news. In an introductory leader, local practitioners are informed that the journal is designed to be the mouthpiece of work done by them and are urged to send such contributions as will make it representative of medical ideas in Egypt. For their convenience papers in other languages than French will be translated if they so desire, and illustrated contributions will be welcomed.

The first number contains original articles on the cure of uterine cancer, on the psychogenesis of certain organic paralyses of cerebral origin, and on local anæsthesia in ear, nose, and throat operations. Another interesting feature which we hope will be continued is the publication of statistics for a week's mortality and childbirth in Cairo and Alexandria. The ages at death are divided into convenient groups and the causes roughly differentiated; the infant mortality and the proportions of male to female births is clearly shown.

The journal should help in the expression of the new hygienic conscience which is so gratifying to all who have the best interests of Egypt at heart.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 1, 1919.

The Problems of Disablement.

AT the Medical Society of London on Monday evening last Colonel A. WEBB, Director of Medical Services at the Ministry of Pensions, gave a brief and businesslike survey of the work of his department in reclassifying and treating ex-Service men drawing disablement pensions. The smoothness with which the system is now working should not blind our eyes to the enormous dimensions of the disabilities which are thus being dealt with. The number of pensionable men is in the neighbourhood of three-quarters of a million, and 16,000 ex-soldiers are attending week by week at medical boards for assessment or revision of their grade of disability. A considerable and increasing proportion of the medical profession of the country is engaged, and likely to be engaged for an indefinite period of time, in the care and treatment of these men, and it is of the very first importance that there should be that relation of confidence and mutual understanding between patient and doctor, which counts so much as an element in recovery.

It was stated without contradiction during the discussion at the Medical Society that as soon as the medical man is known to be a whole-time officer of the Pensions or any other Ministry he is regarded by the ex-Service man as someone who is there to cut down his pension to the greatest possible extent. The pensioner reacts by making the most of his disability, an attitude which, adopted at first for public occasions, inevitably tends to become part of his private life. Colonel WEBB was able to assure his hearers that it was not the policy of his department to create a whole-time medical staff. The work will, therefore, remain in the hands of a much larger number of part-time medical men who are likely to have a more human relationship to disabled men than merely that of assessor. Some of those who have seen the effect on a man of appearing periodically before an assessment board with the intention of putting the best complexion on the severity of his disability, have been led to feel that the allocation of a permanent pension would present less danger in this respect than a pension subject to constant revision. The granting of a lump sum may have something to be said for it. At present a very large proportion of pensions are on a temporary basis—all, in fact, except those in which the disability is final and unalterable, such as the loss of limb or eye.

In regard to the wider aspect of treatment and training, Colonel WEBB announced that the first of the large convalescent centres was shortly to be opened at Blackpool, and the practical results will be noted with interest as a guide for the future. At a centre where training and treatment are combined the atmosphere is obviously conducive to recovery. The importance, therefore, of the treatment and training centre at Enham, started by the Village Centres Council, and officially opened by Sir WORTHINGTON EVANS on Wednesday last, is much greater than appears from mere numbers. Designed to accommodate 1000 men, just over 100 are at present in residence, and of these no inconsiderable number have already signified their intention to settle permanently at the centre. The question of orderly conduct, which has been widely canvassed as a probable difficulty in running such a centre—military discipline not being available—simply does not arise in practice when the men feel that they are placed in surroundings favourable to rapid recovery, and where their returning energy can at once be turned into useful and profitable channels. The further development of the Enham Village Centre may well have a profound influence on the vast medical question of disablement.

Women's Medical Service in India.

THE Joint Committee on the Government of India Bill is now considering the whole question of the share to be taken by Europeans and Indians in the administration of the country, and the Indian Medical Service came up recently for discussion. We take the opportunity of referring to another important element in the health of India. The development of the Women's Medical Service in India during the last seven or eight years shows little progress; indeed, in comparison with women's activities in other countries a relative retrogression is displayed. As long ago as 1912 one of the regular Indian correspondents of THE LANCET, commenting on the brave but ineffectual attempts of the Lady Dufferin Fund to cope with the problem of medical aid for the women of India, declared that the task appeared to be beyond the resources of unofficial energy, and suggested that the initiation by the Government of India of a medical service for women would be welcomed by all classes in that country. Later in the same year the demand for a women's medical service, organised, financed, and controlled by Government, was emphasised in the press, and it was urged that the needs of the times had outgrown the possibilities of any voluntary organisation. In the same year, also, certain recommendations were submitted to the Director-General, I.M.S., by the Council of the Association of Medical Women in India, who begged for the appointment of women inspectors to supervise the work and conditions of life of all medical women, especially of the lower grades in remote districts, pleading that the standard of preliminary and all competitive examinations should be raised, and also that

character and general suitability should be investigated before the award of any scholarships. This memorandum might well have been framed as a comment on the Annual Report of the National Association for Supplying Female Medical Aid to the Women of India (Countess of Dufferin's Fund) for the year 1918. The greater part of this volume consists of reports from branches; these too often record the inefficiency, or even misconduct, of junior officials, leading to dismissal or suspension; or they point out that sub-assistant surgeons or midwives have been found unsuitable for their jobs and transferred, alas, rather than dismissed; while from the teaching schools there are pathetic lists of scholarships and prizes awarded with ever-lowering standards. The result is that the smaller hospitals command no confidence, seeing that, to quote the report, "the lady doctors put in charge are generally women of little or no education, and that they have had no previous experience of hospitals run under purdah conditions." "Lady doctor" is the term in common use in India for female medical assistants who possess certificates of different grades, though the association of the term lady with deficiencies in education is not fortunate.

It must be remembered that since the war the struggle to maintain any sort of medical service for civilians in India has been waged against colossal odds, and the work of some members of the Women's Medical Service has been individually splendid—sometimes, indeed, beyond any demand which should reasonably be made of a human being. Some of the endurance of the East must have infused itself into these women, and protected the innate energy and impatience of evil conditions which originally drove them to their work; and it is good to feel that these qualities endure to face the depressing future. In 1914, just at the moment when buildings, money, and equipment seemed at hand, when an increasing number of women were qualifying in England (a much larger proportion of whom looked to the East as their future sphere than at present), European events swallowed up all recruits to medicine as well as to nursing, and dragged inevitably some of the old stalwarts into the new war work. But the picture is not without its bright side. The war caused a proportionately large increase in the number of qualified women, and conditions will be greatly altered. We understand that modifications are already under consideration in the matter of salary; opportunities for medical as apart from administrative work, and especially the provision of trained nurses, must follow, if suitable recruits are to be induced into this service. A high grade of medical or surgical ability by no means implies administrative skill, and the physician or surgeon who is attracted by the vast mass of wasted clinical material may be a hopeless failure in the East. She may lose her judgment and threaten resignation unless allowed to make a clean sweep of an inefficient staff, making no allowance for local customs and superstitions; she may become resigned to inefficiency and drop all attempts even at gradual reform; or at best she may be forced to give up her personal ambitions for the active practice of her profession and become an administrator pure and simple.

Surprisingly little stress is laid in this report on the need of a nursing service parallel to the Women's Medical Service. The standard of work must fall when a conscientious surgeon is compelled to refuse to perform major operations for lack of skilled help. Such help will not be forthcoming if only pay and leave conditions improve; it is necessary, also, that sufficient European nurses should be employed at one and the same hospital both to maintain an aseptic atmosphere without gross overwork, and to train native effort. It occurs to us that in the interval European travelling operation-teams might be organised. They could travel round a specified area like a judge on circuit and perform non-urgent operations collected for their visit. Their performances would also serve as demonstrations to educate the native assistants at the local hospitals in procedure, so that the resident medical officer might count on some assistance in an emergency. We would also urge the association to enlist the help of the Red Cross, whose activities are to be widely extended in peace time. The V.A.D., coldly regarded by the hospital sister at home, would be welcomed in India, and an organised Voluntary Aid Detachment among the European community in India might be invaluable, not only in hospitals but also in maternity and child-welfare work. Education of the people is badly needed—to-day some local superstitions as to treatment of the newborn infant form a horrible anachronism. The consensus of opinion seems to be that little or no improvement in conditions of childbirth and management of labour may be expected until India has been purged of the indigenous dai. The dai is a midwife whose sole qualification is that of heredity, and whose children learn their profession quite young by watching their mothers at work! One enterprising medical woman, who despairs of introducing antisepsis in any form into the practice of the adult dai, has instituted a school for these children of midwives, in the hopes of constructing synthetic dais, and certain authorities believe that by a widespread adoption of this method of education progress can be made, even if results are only apparent in ten years' time.

For the rest, the map at the beginning of the report is so thickly covered with dots representing women's hospitals or wards as to suggest camouflage when read in conjunction with the rest of the report. Quality rather than quantity is indicated, and we recommend the Women's Medical Service to expand in efficiency and numerical strength any existing centres rather than to attempt further distribution. For the present it must be better policy deliberately to ignore the need in many places so as to concentrate, and thus use to the full, what skilled help is available. Inter-departmental and inter-provincial energy may be relied upon in time to do the rest, provided always institutions have sufficient local prestige to invite the emulation of neighbours. We believe that if expansion is thus checked the real difficulty will be neither money nor buildings, but reliable and educated women in every grade. Great hopes are built on such well-equipped institutions as the Lady Hardinge Medical College, Delhi, which is increasing its staff and hopes to turn out a number of medical women every year. Moreover, if conditions of service are brought more nearly into line with the new I.M.S. regulations, a larger number of women will be attracted from England. We still feel that the decision of the Indian Government in 1913 to refuse to establish a women's medical service, but to give an annual grant of £10,000 to the Dufferin Fund was a mistake, and that a sufficient quantity of suitable women will

not be found to serve a voluntary organisation without official backing. The professional work of the senior doctors in the Indian hospitals has been hampered for many years. The time has surely come when they should be freed from some of the strain of financial and administrative responsibility and thus enabled to get on with the war against prejudice, dirt, and ignorance, as medical officers of a recognised government service.

Violent Excitement as a Release Phenomenon.

IT is no uncommon experience in medicine to find exceptions more instructive than rules, and rarities than banalities. The occasional occurrence together of tabes and hemiplegia has served more to merge the obsolescent terms of parasyphilis and tertiary syphilis into the comprehensive "neuro-syphilis" than either by itself, though much more frequently encountered, could have done. In the same way, laborious concentration on the common phenomena of idiopathic epilepsy, even patient investigation of such side-issues as its metabolism, its urinology, the cholin-content of its spinal fluid, and so on, has aided less in an understanding of its essential nature than a consideration of the rarer cases in which epilepsy is seen to lie on the borderland of other states. Distinctions between hystero-epilepsy and epilepsy proper are breaking down, and each is being regarded rather as the expression of a temporary disintegration of functional neural mechanisms or levels, to differing degrees no doubt, but from the effect of not always fundamentally differing factors. During the air-raid experiences in London it was frequently observed that attacks of idiopathic epilepsy followed on emotional strain and stress, thus furnishing a clue which deserves prosecution, especially since the exciting cause of epileptic fits is often apparently elusive and that of hysterical fits is supposedly obvious. There is, moreover, a well-recognised psychic epilepsy. Psychical equivalents of epilepsy are of practical significance, and the occurrence of epileptiform attacks in psychasthenia provides one more evidential item, were such required, to show how limited is the conception of idiopathic epilepsy which would restrict it to a conventional form with a conventional symptomatology. Several of the interesting cases narrated by Dr. A. L. TAYLOR in his brief paper in another column illuminate the *Grenzgebiet* of hysteria, epilepsy, and psychasthenia, and throw into relief not merely the difficulty of diagnosis but also the inadvisability of compressing epilepsy into a symptom-tight compartment. The student of the subject is compelled to recognise that certain patients exhibit seizures clinically indistinguishable from ordinary epilepsy as reactions to situations of a purely psychical nature. In other words, the attacks are due to extraneous psychical causes such as have been supposed to be characteristic of hysterical fits only. In these patients, further, dream-states, violent outbursts of temper, excitements, even maniacal outbreaks, recur periodically on the heels of emotional experience or as the result of ideational or conceptual activity. The "wild man" who "runs amok" at the sight of a policeman, say, is to be judged in the light of such knowledge, whether there be evidence of a post-epileptic confusional state or not. To assume his entire responsibility in the absence of proof of the occurrence of the phenomena in a post-epileptic interval is unjustifiable, for they may constitute the epileptic state itself. The emotional nature of the original experience, it may be repeated, is no criterion of hysteria. Some years ago Mr. CHARLES B. DAVENPORT,[1] of the Carnegie Institute in Washington, published a statistical study of violent temper and its inheritance, and proved conclusively that in hysterical, epileptic, and insane family histories alike the tendency is a dominant in the Mendelian sense. He neither regards these conditions as a cause of violent temper nor the latter as an equivalent of them, but holds that the attacks are due to some factor operative in all. It will be seen, therefore, how the horizon of epilepsy widens and what justification there is for the contention that a psychogenic basis for the epileptic seizure, properly so-called, should be sought for by psychical methods of examination, or at least should not be ignored because the patient bites his tongue and is incontinent. There may be certain minor symptomatological differences between the epilepsy of degenerates of this grade and that usually considered genuine epilepsy, but the former is no pseudo-epilepsy. Another point of interest raised by Dr. TAYLOR'S paper is the susceptibility of some neurotic persons to alcohol after their sensitiveness has been increased by a preceding nervous condition, and he does well to emphasise the bearing of the data on annual statistics of the so-called causes of insanity. Once nervous disease, or a functional nervous state, reduces resistance, trifling doses of alcohol may produce an effect out of all proportion to their amount. And not merely alcohol alone will thus disturb psychic equilibrium. It is known that in the strenuous days of the retreat from Mons, when physical and mental fatigue was at its maximum, the mere partaking of a hot, innocuous, Maconochie ration sometimes resulted in the individual's exhibiting all the appearances of intoxication. Alcohol, as such, is but the match that fires the train already laid by quite other agencies, and is no more or less blameworthy than the anæsthetic administration which leads to the struggles on the operating table.

The Medical Consultative Council.

THE consultative council appointed by the Minister of Health to advise him on questions relating to medical and allied services has held its first meeting under the chairmanship of Sir BERTRAND DAWSON. Dr. ADDISON stated that the main duty of the council would be in connexion with questions of policy in the formative stage. This, he added, would necessitate the deliberations being of a confidential character, although statements would be issued to the press from time to time. His first question to the council would be: What is the ideal system of medical and allied services? Sir BERTRAND DAWSON, who as chairman of the council is to have direct access to the Minister, said that their endeavour would be to represent the views of all sections of the profession. We feel sure that this endeavour will be loyally made and carried out with great and fruitful results, but it is a matter for regret that the council is always to meet secretly. A great opportunity of public education in medical matters may sometimes be lost in this way.

[1] THE LANCET, Oct. 23rd, 1915.

Annotations.

"Ne quid nimis."

THE REACTION OF CULTURE-MEDIA.

SINCE the early dictum of Koch, that nutrient media intended for the cultivation of bacteria should be faintly alkaline to litmus, the reaction of media has always occupied the serious attention of the bacteriologist. But the bacteriologist, and still less the laboratory attendant to whom the actual preparation of the nutrient media is too often relegated, is not necessarily a trained chemist, well versed in the technical applications of the dissociation theory, expert in the manipulation of the electrical potentiometer, and familiar to the point of contempt with the various indicators. Consequently the methods advocated failed to attain any general acceptance, and standardised media still remained merely an ideal. Towards the end of the last century, however, Eyre in this country and Fuller in America proposed similar simple methods for the chemical titration of media against normal alkalis or acids, using phenolphthalein as the indicator. As these methods served a useful purpose in adjusting media of similar composition to an arbitrary standard, shown by trial to be generally acceptable to bacterial growth, they enjoyed a considerable vogue, and the scales evolved to indicate the amount of normal alkali (or acid) required to render the finished medium neutral to phenolphthalein became the recognised method of recording the reaction of media employed in special investigations.

Now, in dealing with pathogenic bacteria, at any rate, it is obvious that the reaction of the media employed for their growth should approximate to that of the tissues of the animal in which they are naturally parasitic, and the expression of that reaction is most conveniently stated in terms of the hydrogen-ion concentration. But ordinary titration methods do not afford a true criterion of the hydrogen-ion concentration of the solution investigated, and a just comparison with a perfectly neutral substance, such as distilled water, where the hydrogen and hydroxyl ions are equally balanced, cannot be made. The titration figure depends entirely upon the kind and sensitiveness of the indicator employed, so that, for example, the same organic acid solution would require a different amount of normal caustic soda to bring it to the neutral point, according to whether phenolphthalein or orange-red was the indicator used, and in neither case would it be necessarily "neutral" in the modern acceptation of the term. The difficulties to be encountered are well exemplified by the contribution in our issue of Oct. 25th from Dr. J. McIntosh and Mr. W. A. M. Smart "On the Adjustment of the Reaction of Bacteriological Media." These writers advocate the titration of the media with the help of thymolphthalein, an indicator the end-point of which is fairly sharp and bears a definite relationship to the hydrogen-ion concentration of the solution to which it is added—viz., $P_H = 8{\cdot}95$. This concentration is, of course, unsuitable, but the authors state that media adjusted to that point merely require the addition of 10–12 c.cm. normal HCl per litre to bring the final reaction of $P_H = 7{\cdot}6$. (the reaction of normal plasma), which, it is agreed, is the most suitable for routine work. These contentions are, however, only true if the instructions laid down by the writers are followed exactly and in their entirety, as was shown by some experimental trials. They do not hold for media of even slightly differing constitution; indeed, by omitting to specify the exact brand of peptone used in their own experiments they lay themselves open to misconstruction, as different peptones give widely divergent results. That the authors themselves realised the existence of such sources of fallacy is evident, since at this stage they direct that further control titrations must be carried out with two other indicators, and it is clear from the paper itself that a certain amount of adjustment may be necessary. Apart from this, it is not quite certain that the dilution of a medium with distilled water prior to titration leaves its hydrogen-ion concentration unaltered.

In view of these facts the Green Book recently issued by the Medical Research Committee on "The Reaction of Media" (Special Report Series No. 35) will have a wide appeal. The method here advocated is based upon the work of Sörensen, Walpole, Homer, and others, and depends upon the preparation of a series of standard phosphate solutions of varying hydrogen-ion exponents, the accuracy of which can be controlled by potentiometer readings. To each standard a fixed amount of phenol red is added, thus forming a range of shades, against which may be matched corresponding mixtures of the medium to be standardised. Thus in the first instance the initial hydrogen-ion concentration of the medium can be estimated, and later the addition of sodium hydroxide will enable the observer readily to match the shade corresponding to any required exponent. The simplicity of the process, and the ease with which any required hydrogen-ion concentration can be secured, are the essential features, and a few trials will suffice to demonstrate the eminently practical character of the method. So soon as its adoption becomes general the ideal of standardised media will have taken a long step towards realisation, for no matter what precautions are taken or omitted during the early stages of the manufacture of his nutrient medium, the worker will be assured that it will be a simple matter for any subsequent observer to reproduce with exactitude what is probably an all-important feature—the final reaction in terms of hydrogen-ion concentration. The obvious corollary to the publication of the Green Book is, of course, the supply of sets of standard phosphate mixtures and standard indicator solution guaranteed by the Medical Research Committee. Such action would greatly reduce the labour involved in standardising media, and earn the benediction of the working bacteriologist.

A JOURNAL OF DISCOVERY.

As a result of a conference, called early in this year by the Presidents of the Royal Society, the British Academy, and other important bodies, it has been decided to publish, not for profit, a popular monthly journal, in order to keep the public informed of the progress of knowledge in all branches. The scheme is to produce a journal the high standing of which is assured by the eminence of its sponsors, and which, while written in popular language, will provide references to the original work on which its articles are based. Many prominent educationists were present at the conference, and distinguished representatives of all branches of Science and the Arts, medical men being represented by Dr. C. S. Myers. The

meeting selected *Discovery* as the name of the new journal, and established a trust for its maintenance, the first trustees being Sir J. J. Thomson, Sir F. G. Kenyon, Professor A. C. Seward, and Professor R. S. Conway, who is also the honorary secretary. The publisher will be John Murray, and the editor Captain A. S. Russell, M.C., D.Sc., reader-elect in chemistry at Christ Church, Oxford. The price will be sixpence, and the first number is to appear on Jan. 20th. The leading societies in every branch of knowledge have undertaken to furnish to the editor every year a list of suitable contributors, and help has also been promised from various bodies of students and teachers and from public libraries. The journal regards all knowledge as its province; the managing committee, as at present constituted, is therefore large and may prove unwieldy in practice. No specific mention is made in the preliminary circular letter of the coöperation of any medical bodies, but presumably one at least of the five members to be nominated by the Conjoint Board of Scientific Societies will be a medical man. The criticism is often made that we have but little general culture or knowledge of recent research outside our special lines, and on the whole it is not unjust. On the other hand, it is amazing how ignorant even the highly educated lay public are of medical research that concerns them very nearly, and to what extent superstition still clings to them. A widespread knowledge of current medical opinion on such matters as heredity and contagion in tubercle and cancer would be of enormous benefit to many members of the general public, who often worry about these questions with a personal application that makes them hesitate to frame a definite question. We trust that the editor will bear these facts in mind and will allot to medical science a space proportionate to its neglected place in national education. In any case we look forward to the appearance of the journal with great interest.

NASAL HYDRORRHŒA.

ACCORDING to Dr. John A. Thompson,[1] of Cincinnati, the condition called by Bosworth nasal hydrorrhœa and by others rhinœdema or œdematous rhinitis has received little attention from rhinologists. Thompson defines it as an obscure nervous disease, the chief symptoms of which are nasal. There is some relation between it and angioneurotic œdema with which it is occasionally associated. The disease is most common among younger men and women of sedentary habits. There are no known external exciting causes, such as produce hay fever, or as in the œdema caused in certain persons by the emanations of horses, cats, or other animals. The local condition is a dropsy, the connective tissue interspaces of the turbinated bodies being filled with serum. The characteristic symptoms are a sense of extreme irritation in the nose, followed by sneezing and a very profuse watery discharge from both nostrils, which varies in amount from an ounce to half a pint in 24 hours. The fluid is alkaline, and contains small amounts of sodium chloride and traces of phosphates. The presence of mucin differentiates it from the cerebrospinal fluid discharged from the nose after injuries. The disease may begin at any season of the year and last for months or years. The reasons for regarding nasal hydrorrhœa as a nervous disease are, first, the pronounced mental depression from which the patients suffer; secondly, any unusual mental or emotional strain greatly aggravates the nasal symptoms; and lastly, local treatment absolutely fails to give relief, the condition being only cured by tonic and hygienic measures.

[1] Journal of the American Medical Association, 1919, lxxiii., 587-8.

THE THREAT OF INFLUENZA.

DREAD of an impending epidemic of influenza may be justified, and it is of enormous importance that the country should not be taken unawares. But neither a study of precedent or a consideration of existing circumstances warrants the public apprehension. In view of inquiries, the Ministry of Health has stated that during the last few weeks there has been in the 96 great towns of England and Wales a slight but gradual increase in the number of deaths attributed to influenza, and a coincident rise in the number of notifications of acute primary and acute influenzal pneumonia. The increase appears to have been associated with prevailing meteorological conditions, and does not, in the opinion of the advisers of the Ministry, signify more than the usual variation in catarrhal and lung diseases generally which may be expected at this season of the year. Whilst the possibility of a fresh outbreak of influenza cannot be excluded, the data available do not at present afford any indication of an immediate recrudescence of the disease in epidemic form.

THE OLYMPIA MOTOR EXHIBITION.

THE thirteenth exhibition, which is under the Royal patronage of H.M. the King and organised by the Society of Motor Manufacturers and Traders, Ltd., in connexion with the Royal Automobile Club, opens its doors next Friday, Nov. 7th. Many old as well as new British firms will be found among the exhibitors, names ranking high in the motor and engineering world. It has not been easy to change over from war work to car-building. Raw material has been difficult to obtain, strikes have caused a shortage of fuel and castings, and labour unrest has added to these difficulties. Still, many manufacturers are concentrating upon mass production, which is the only method to produce nowadays a car at a reasonable price. And some of them appear to be working might and main with the idea of meeting the requirements of the very rich, who—whether fairly or absolutely unfairly—are being classed as war profiteers. Still, the man of moderate means, another way of describing the doctor, will be catered for, and the 4-cylinder car of 12 horse power will be in evidence, though it is questionable whether delivery of such cars will be obtainable at an early date. The experience of many who have ordered cars since the armistice has been unfortunate: the nearer the delivery date approached the more it receded, a position which has tested severely their patriotism in ordering British cars. It is to be trusted that future events will not justify such an argument in favour of American, French, or Italian products.

The official announcements of the meeting may be noted:—The price of admission, including tax, will be as follows: Tuesday and Thursday, before 6 P.M., 5s. and 10s. respectively, other days and times being 2s. 6*d.*; the band of H.M. Welsh Guards will play thrice daily; and the catering is in the hands of Messrs. J. Lyons and Co., Ltd.

SERUM THERAPY IN BACILLARY DYSENTERY.

THE two papers by Dr. B. G. Klein and Dr. W. E. Waller on the treatment of bacillary dysentery by anti-dysenteric serum, which appear in our present issue, contain a record of well-observed experiences, and will prove a valuable gain to our knowledge, dealing, as they do, with the subject in countries as widely separated as France and Mesopotamia. It will be noted that in the use of the polyvalent serum available to both, Dr. Waller administered it by the subcutaneous method to all of his 148 cases, in doses of 140 c.cm. given in three injections at eight-hourly intervals during the first 24 hours for severe attacks, and in milder cases of 100 c.cm. in two injections. Dr. Klein, on the other hand, whose serum-treated cases numbered 51, came to prefer intravenous administration, after having given full trial to both intramuscular and subcutaneous methods in 28 of his earlier cases, and the size of his single doses varied from 25 to 120 c.cm. The latter claims as advantages for the adoption of the intravenous route that the serum is better able to get to work at once, that the whole dose is available instead of the possibility of some of the active principles of the serum being destroyed locally in the tissues when given *sub cute*, and that the method is practically painless. Against intravenous administration is the possible danger of anaphylaxis, particularly to those who have already been "sensitised" by previous serum treatment. Although the risk has, perhaps, been somewhat exaggerated, and the chances of anaphylaxis occurring are less than at one time supposed, the danger is one which has to be guarded against. Where it is known that a patient has previously received serum, either antitetanic or antidiphtheritic, precautions can be taken to minimise the risk of shock by adopting, as Dr. Klein contemplated, the method of giving an initial dose of about 1 c.cm. intravenously, followed after several hours by the main dose.

Opinions as to the size of the dose of serum necessary for administration by either route differ widely, and it has even been advocated in an amount as large as 300 c.cm.! The necessity for large dosage has recently been challenged in the report[1] on "Bacillary Dysentery occurring in Macedonia," on the grounds that the polyvalent serum, as at present prepared, is an unsatisfactory method of treatment, containing, as is believed, antitoxins derived from a mixture of the Shiga bacillus and one or more strains of Flexner bacilli; further, that its employment has even become a ritual in certain instances for almost all cases passing blood and mucus. In view of the importance of providing an antiserum in acute bacillary dysentery as early as possible, this report advocates that every case requiring serum therapy should receive a mixed antiserum for the *initial* doses. Subsequently, as under the most favourable conditions the infecting organism can be determined bacteriologically in 12 to 16 hours, all proved Shiga cases, which constitute the majority of severe infections, should receive an anti-Shiga serum, and the Flexner cases, representing the majority of the milder type of the disease, the appropriate serum as required. On such lines, and with the specific antisera ready at hand, it is justifiably claimed that better results would be forthcoming, with the added advantages of the injection of smaller amounts of the horse serum, subcutaneously administered; thus would be avoided the necessity of relying on antiserum which may not contain adequate antitoxin to neutralise the special toxins of the infecting organism. The report concludes its criticism of the present serum therapy of dysentery with observations on the agglutinin content of certain antidysenteric sera supplied to the British Salonika Forces, and the very important and cogent deduction therefrom "that 'in-date' antisera may be very deficient in dysentery agglutinins, especially for *B. Shiga*."

Dr. Klein's and Dr. Waller's results are in general accord with current opinion as to the importance of antiserum administration not later than the sixth day from the onset of the disease, when its value in averting a fatal issue and reducing the rate and completeness of recovery steadily diminishes. The efficacy of serum therapy would in all probability be greatly enhanced by the provision of specific antisera on the lines advocated by Colonel Dudgeon's report, with the prospect of reducing not only mortality, but also the large number of chronic cases. The waste in man-power of our fighting force was immense, as was the loss of money consequent on the crippling influence of dysentery. There is need for improvement in the preparation and use of antiserum as a means of treatment, including the avoidance of the harmful effects of over-dosage with horse serum, such as anaphylaxis, and serum sickness, which figure largely in Dr. Waller's series of cases; and we have much to learn as to its prophylactic value. Time and experience, too, have yet to show what place, if any, vaccine therapy and prophylaxis will fill in supplementing the present methods of dealing with bacillary dysentery.

[1] "Studies of Bacillary Dysentery occurring in the British Forces in Macedonia." Edited by Colonel L. S. Dudgeon, C.M.G., C.B.E., F.R.C.P. No. 40. Special Report Series of the Medical Research Committee.

THE "BARTS" CHRONICLE.

THE appeal of St. Bartholomew's Hospital to the public for liberal support, in order that part of its important work shall not be shut down for lack of funds, has taken the form of an illustrated pamphlet of 16 pages, resembling in appearance one of the daily picture papers. The first number, dated Oct. 25th, is issued at 2*d*., and, it is stated, has been registered at the General Post Office as a newspaper. Short articles in the form of news paragraphs describe the history of the hospital from its foundation, the manifold work which it is doing, and the urgency of the financial position. The illustrations are many and excellent, although they only appear to full effect on the art paper employed for part of the issue. The form of the appeal is ingenious, and the execution worthy of the importance of its cause.

PURPURA HÆMORRHAGICA DUE TO NEO-SALVARSAN.

THE serious and even fatal consequences which occasionally follow administration of salvarsan or its substitutes in ordinary doses have never been satisfactorily explained. The attempts of Ehrlich and his followers to exonerate the drug by attributing them to organic disease in the patient or to errors of administration have failed. The prevalent view is that they are toxic effects due to some idiosyncrasy to the drug. The suggestion has been made in the *Journal of the American Medical Association* of August 30th, p. 710, that they are due to some error in the preparation of the drug which

leads to decomposition during storage. Dr. J. B. Rieger refers to four successive cases of "delayed reaction," to arsphenemin in the practice of a man who had previously used the drug with entire satisfaction. An ampoule was examined and found sound, but the contents gave a solution with the characteristic gun-metal tinge due to oxidation. At a meeting of the Société Médicale des Hôpitaux of Paris, MM. Marcel Labbé and Simeon Langlois described a new condition which must be added to the forms of arsenical poisoning possible after administration of salvarsan and its substitutes—purpura hæmorrhagica. Three cases of purpura hæmorrhagica, of which one was benign and two were fatal, have occurred in the practice of M. Leredde. The following is the third case.

A woman, aged 25 years, had in April, 1918, an indurated chancre of the lip with cervical adenopathy, which was followed by roseola in June. From July 15th to August 18th were given six injections of novarsenobenzol (15, 20, 30, 45, 60, and 90 cg.). The last injection fatigued her, obliging her to remain lying down all day. There were rigors and a little fever. At the end of August she suffered from influenza. From Sept. 1st to 22nd four injections (75, 75, 75, and 90 cg.) were given and they produced facial congestion. She rested for three weeks. On Oct. 13th the Wassermann reaction was positive, and 45 cg. were injected. She rested for a fortnight. On Nov. 3rd the injection was repeated, and two hours later there was slight bleeding from the nose and gums. On Nov. 10th and 17th and on Dec. 1st the injection was repeated with the same result, the hæmorrhage on the last occasion lasting eight hours. On Dec. 8th ecchymoses appeared on the limbs and purpuric spots on one shoulder. An injection of 30 cg. was given. For two days there was no hæmorrhage, but menstruation began on the 10th, eight days in advance of its time, was much more abundant than normal, and lasted seven instead of three days. Then epistaxis recurred. On the 20th she was admitted to the Charité Hospital very pale and weak, and bleeding from the nose, gums, and tongue. The liver was slightly enlarged. Blood examination showed: red corpuscles 1,601,000 and leucocytes 4650, of which polymorphonuclears were 30, lymphocytes 25, and mononuclears 35 per cent. The coagulation time was 19 minutes and the clot was irretractile. 20 c.cm. of horse serum and 500 of normal saline solution were given hypodermically. Improvement of short duration followed. In spite of repetition of the injections the coagulation time became longer and longer, the hæmorrhages continued, the temperature rose, and the pulse was accelerated. On the 29th she became comatose and died.

The symptoms corresponded closely to what is described as "infectious purpura," but there was no doubt that they were due to the injections, for they occurred in the two other cases. Arsenical intoxication is mentioned as one of the causes of purpura. The moral of the case is obvious. Hæmorrhage into the skin or from mucous membranes during salvarsan treatment should be regarded as a danger signal, and the drug discontinued. In the discussion which followed M. H. Grenet stated that he had seen, during salvarsan treatment, slight hæmorrhages from the gums and slight hæmoptysis in the subjects of latent tuberculosis.

THE Conference of Representatives of Local Medical and Panel Committees of the British Medical Association will meet in London on Nov. 27th, when the remuneration of Insurance practitioners under the 1920 terms of service will come up for discussion.

AT the Royal College of Physicians of London, on Nov. 6th, Dr. A. P. Beddard will deliver the Bradshaw lecture, entitled "Some Remarks on Chronic Arthritis." The Fitz-Patrick lectures will be given by Dr. Edward G. Browne on Nov. 11th and 13th, his subject being "The Origin and Development of Arabian Medicine."

THE MEDICAL PROFESSION AND THE NATION'S HEALTH.[1]

BY SIR MALCOLM MORRIS, K.C.V.O.

THE war which descended upon a startled world like an avalanche five years ago was to usher in an era of universal peace. We were encouraged to look forward to a time such as that sung by Milton in his seraphic ode:—

"No war, or battle's sound,
Was heard the world arounde;
The idle spear and shield were high up hung;
The hookèd chariot stood
Unstain'd with hostile blood;
The trumpet spake not to the armèd throng;
And kings sat still with awful eye,
As if they surely knew their sovran Lord was by."

How different, so far, has been the reality from the promise. For "meek-eyed Peace," who, with wide waving of her myrtle wand, struck "a universal peace through sea and land," the Congress of Paris has been a sorry substitute, and while, with infinite wrangling, it has been ensuing peace, a large part of Europe has been in the throes of a fratricidal war. If new nations are being born, it is by a process of prolonged and difficult labour, with vigorous instrumental interference. Of the older nations, some have undergone revolution, others are wondering whether it will not presently be their fate also to "shoot Niagara." Thrones not broad-based upon the people's will, as ours happily is, have been overturned, nor are republics free of apprehension. Statesmen, the most richly endowed with insight and prescience, feel that their vision has grown dim. Civilisation, it is true, no longer trembles under the menace of a militarism gone mad. But its best minds would give much to be sure that there is no need to fear chaos.

Upon the medical profession the reactions of the great catastrophe have been exceptionally severe. A multitude of students enrolled themselves in the fighting ranks. Many of them fell on the stricken field; the survivors have had to resume their training at the point at which it was interrupted. Of the thousands of practitioners who entered the R.A.M.C., too many have returned to civil life to find that they have to begin their careers over again. Those whose duty it was to remain behind to care for the health of the civilian population were subjected to a strain that was barely endurable. We have heard much about the demands made by the war upon the endurance of coal-miners and munition workers, and we are invited to find in this an excuse for slackness and under-production in certain industries since hostilities ceased. I venture to assert that no group of manual workers was exposed to a strain greater than that which medical men had to bear, and neither while the war was raging, nor since, has there been any slackness for which excuses have to be found.

Recognition of Professional Service.

The time of greatest stress was during the successive waves of the influenza epidemic. The country has too much taken for granted what I do not scruple to call the heroism with which that emergency was met. On the other hand, there has been ample recognition of the service rendered by the profession in war work. The brilliant triumphs it achieved, by antiseptic resource and surgical skill and consummate organisation, in combating the diseases of war, both long-familiar diseases such as typhoid, and new diseases such as trench fever, and in saving life and limb and repairing horrid mutilation, have won universal appreciation. Never before in the history of these islands had the profession enjoyed such an opportunity of justifying itself and its methods. We may regard this as a hopeful augury of the consideration which will be paid to the medical view in whatever changes may be coming upon us. The sense of what the country owes to the profession is possibly one of the things which made so smooth a path for the advent of a Ministry of Health. And the creation of that Ministry, with a medical man at its head, with its medical officer charged with administrative powers and responsibilities, and with its Medical Consultative Council, is another reason why we may regard the future with hope. Certain it is that the Ministry of Health cannot do its best for the health of the

[1] An address delivered before the Harrogate Medical Society on Oct. 16th, 1919.

nation—and that, reduced to simplest terms, is the end for which it has been created—without promoting the best interests of the profession. Never again will a great health measure such as the National Insurance Act be presented to the nation until medical men, upon whom the burden of carrying it into effect, have been fully consulted.

State Medicine.

I shall make no attempt to forecast the precise changes which are coming upon us. Of all mental exercises none is so unprofitable as specific prophecy. But who can doubt that, as the years go by, medical men will more and more be engaged in the practice of State medicine? The nation is manifestly evolving in the direction of State control and State service. In what I have elsewhere called the swan-song of the late Local Government Board, the review of public health events since 1871, which is prefixed to his annual report for 1917–18, Sir Arthur Newsholme points out that of the 24,000 practitioners on the Medical Register of England and Wales some 16 000 are engaged in insurance domiciliary practice, from 4000 to 5000 in Poor-law practice and as public vaccinators, 1800 to 2000 as medical officers of health, tuberculosis officers, venereal disease officers, &c., and 1300 in the School Medical Service. To these have to be added the medical men in the navy and army, and those who are doing lunacy and factory and post office work. More than one public appointment is, of course, often held by the same medical man, but, when this is allowed for, the figures show that already the vast majority of practitioners are engaged in what I may call communal service. And the tendency for this communal work to grow is irresistible. Take the School Medical Service as an example. In my little book, "The Story of English Public Health," I have sought to convey some notion of what that service has accomplished during the few years of its existence. But it is only a beginning. No one could, or would, attempt to set bounds to its future activities. By its system of inspection it has brought to light the alarming prevalence of health defects among school children, defects which prevent the proper use of the educational facilities which at enormous cost the community provides. It now remains to cure the defects as they are discovered, and, even more important still, to remove the conditions—ante-natal and domestic and social—which are the *fons et origo mali*. Take but one other instance, National Health Insurance. By an Act passed during the present year, almost *sub silentio*, and now actually in operation, the income limit within which insurance is obligatory has been extended, subject to certain exceptions, from £160 to £250. And who can be sure that presently there will not be further extensions? I remember that when the County Franchise Bill, of which he had been one of the champions, was passed, Sir George Trevelyan was reported to have exclamed, "How many Acts are there implicit in this Act!" So is it with Public Health measures. Having gone so far in recognising its responsibility for the nation's health, the State is sure to go much farther. It has been suggested by Dr. Gordon Dill that compulsory health insurance should be extended to all classes of the community. In this way, he believes, most of the conditions of health insurance with which fault is found would be removed, the system would be placed upon a sound financial basis, and its success would be assured. We may not be within measurable distance of that consummation, but no one can doubt that the claims of the body politic upon the organised service of medical men, in this and many other directions will inevitably expand.

Should All Medical Work be Placed on a Communal Basis?

This suggests the question whether it is desirable, in the interests of the profession, that *all* medical work should be placed upon a communal basis. In his brochure on the "Future of the Medical Profession," a contribution, in my judgment, of more than temporary value to a discussion that is still only in its initial stages, Sir Bertrand Dawson appears to look forward to a time when medical men generally will be either full-time or part-time salaried servants of the community. According to this conception, the specialists in preventive medicine, radiographers, chemists, bacteriologists, and pathologists, will be mainly whole-time servants of the community, and will be paid correspondingly by salary, and, speaking generally, the number of whole-time men will be greater in large towns than in more thinly populated areas. It is possible that we may not be far removed from such a regime as is here sketched. In my opinion that is quite as far as it is desirable to go in the direction of communal service. To go farther, to aim at the abolition of private practice, is, in my judgment, desirable neither for the nation nor for the profession. Some medical men are able to regard such a prospect with equanimity and even with enthusiasm. The vast majority, I am persuaded, would regard it with dismay and many of them with abhorrence. I agree entirely with Sir Bertrand Dawson when, in a pregnant sentence, he declares that "liberty of action, the stimulating force of rivalry, and the personal touch are essential." I for one have no wish to see medical men deprived of their independence, their initiative. Any system which bears such a fruit as that is, in my opinion, self-condemned. That may be a German, it is certainly not a British, ideal. It makes for a soulless mechanism; it would rob medicine in this country of the humanity which is its chief glory. Leave no scope for the spirit of adventure, and how much of the zest and savour of life would have vanished! No; the medical man must be left free to realise himself. And the patient, too, must be left absolutely free to choose his doctor. In the whole circle of social relations there is none more to be admired than that subsisting between the family practitioner and his patients. He wins their confidence, he comes to be regarded as their friend, and his personal influence supplies that element of suggestion which is hardly less valuable than professional skill. No scheme of organisation must be allowed to disturb a relation which so abundantly justifies itself by its result.

Specialism in Medicine.

Another pronounced tendency of the times in medicine is that towards specialism. It is not without obvious disadvantages. The specialist is in danger of looking at the problems that demand solution too much from his own angle, forgetting that he cannot make full use even of his own special knowledge if he confines himself rigidly to it and fails in appreciation of the more general aspects of medicine. All the same, as medical knowledge grows and medical technique becomes more highly elaborated so will specialism increase. To recognise that is by no means to depreciate the importance of the general practitioner. I question whether the laity understand even approximately how much knowledge it is necessary that he should have acquired, or how exigent are the demands constantly being made upon his mental alertness, his resourcefulness, his judgment. They do not realise that, of all the fundamental sciences, astronomy is the only one which does not enter into the bases of medicine. Nor do they know how vast is the field which medicine itself presents to the medical student. When at the end of his studies he enters upon general practice, how much is expected of him—tact, sympathy, self-command, coolness and equanimity, cheerfulness and resourcefulness, quick decision. What other profession is there in which the man's whole personality finds a scope so extensive?

Importance of Training.

If that rough sketch of what is expected from the general practitioner is correct, it is obviously of the first importance that he should have the best possible training for work so exacting. Does he get the best possible training? That question is answered with an emphatic negative by Sir James Mackenzie, in his recent book on "The Future of Medicine." He cites his own illuminating experience. Starting practice with the confidence that his studies and his hospital experience had properly qualified him for his work, he was not long in finding that in the great majority of his patients he was unable to recognise the nature of their ailments. The examinations he had been trained to make in the hospital wards, and even in the out-patient department, had reference for the most part to the detection of gross physical signs. As a general practitioner he found that few of his patients had any physical signs to detect. What he was called upon to diagnose was subjective symptoms, and in this kind of diagnosis he had had so little training that he found himself quite at a loss. He connects this lack of understanding of the beginnings of disease with the fact that men who have been in general practice have no place on the teaching staff of our hospitals. The remedy he proposes, pending that reorganisation of medical education which is widely felt to be necessary, though there is no common agreement as to the form it should take, is that in every

school of medicine there should be, at least, one teacher who has had from 10 to 20 years' experience of general practice. "It would be well," to quote his words, "if a young man were encouraged to enter general practice with the expectation that if he proved himself fit he should be qualified to become a teacher, and have the opportunity in a well-equipped hospital of solving the problems he has had to face in his practice. In general practice he would speedily be brought face to face with the real difficulties of medicine." Thus, as Sir James Mackenzie points out, he would come to know how to assess the value of symptoms, an appreciation of which is so necessary for the consultant and teacher. Only by such an experience can the whole field of medicine be viewed in its proper perspective. I cannot help feeling that this suggestion is as valuable as it is novel. In my own work as a consultant and teacher I often felt it an advantage to have had, at the beginning of my career, some experience of general practice. Antecedently, it might seem to be impossible that the training of general practitioners should virtually be restricted to those who have had no experience of general practice. But life abounds in these antecedent impossibilities, and we are so habituated to them that when the rational view is first presented to us we are apt to suspect a paradox.

The Out-patient Department.

The beginnings of disease—I must dwell for a moment upon that phrase. How little is our present system of medical education calculated to equip the student with this most necessary knowledge! It is in the out-patient department that it is to be acquired. Is it here, where diagnosis is most difficult and there is greatest scope for cure, that the most experienced physicians are employed, and that all the aids of laboratory technique are at hand? On the contrary, as Sir James Mackenzie says, out-patients are relegated to "the youngest member of the staff. He searches carefully for physical signs, and if there are no physical signs the patient is either discharged with a bottle of physic, or told to return from time to time until a physical sign is discovered; then, and not till then, is he sent to be under the care of a skilled physician; and then, and not till then, does he receive the assistance of laboratory methods in his examination." This defect in our medical education is insisted upon no less strongly by Sir George Newman in his memorandum on Medical Education in England. "There are not half-a-dozen medical schools in this country," he says, "where the student is continuously and properly taught in the out-patient department. Indeed, nothing could be more remote from true educational method and spirit than the clinical work which sometimes characterises out patient treatment or the teaching of students in these departments—a hasty glance, a bit of paper, and on to the next patient, a situation inferior to that of a busy morning in the waiting room of a certifying factory surgeon or an over-driven panel doctor, a handling of the patient which is actually mischievous training for the student. Yet the out-patient department should play an important part in his education." The fact is, gentlemen, that the whole conception of the out-patient department is wrong. Instead of being regarded as an avenue to the wards, where the patient will be welcomed when his symptoms have developed *secundum naturam*, it should constitute a first line of defence, a barrier to prevent him from gaining access to them. What is wanted in the out-patient department is not a policy of expectant treatment but the offering of a vigorous resistance to the beginning of disease. As the ultimate aim of State medicine is not merely to check the dissemination of disease but to prevent its occurrence so, in the limited senses of arresting disease in the initial stages, of appreciating the significance of early symptoms and averting their development by the application of remedies or the correction of faulty modes of life, should prevention be the ideal of hospital and private practice.

The importance of this point seems to have been overlooked by one of the leading public health authorities of the United States. In Mr. Frederick Hoffman's "Plan for a More Effective Federal and State Health Administration" there is much sound sense, but he brings against schemes of compulsory health insurance the objection that "the major portion of time, thought, and expense is devoted to trivial and partly imaginary ailments," ailments which, he holds "have neither much pathological nor sociological significance." In my opinion, this attention to early symptoms which leads Mr. Hoffman to condemn compulsory health insurance is precisely the ground on which such systems can most successfully be defended. Our own National Health Insurance was so shaped as to be more concerned with palliative than with preventive medicine. Apart from the work of the Medical Research Committee—a very important exception, it is true—it has done little directly for preventive medicine, but by the facilities it provides for prompt and early medical treatment it has, I am persuaded, done much to check the development of disease.

Representation of Medical Men on Governing Bodies.

By the creation of the Ministry of Health the medical view, as I have suggested, has a representation in the Government such as it has never before possessed. But that is not nearly enough. It is also necessary that the profession should be powerfully represented on all the authorities which have the framing and execution of the laws bearing upon its work and upon the nation's health. When, in the "eighties" of the last century, it looked as though the agitation against compulsory vaccination was about to achieve a definite triumph, it was left to a non-medical Member of Parliament, Sir Lyon Playfair, to stem the time by a speech which undoubtedly changed the current of Parliamentary feeling. It was he also who effectively defended the cause of experimental research. In these days the profession is better served in the House of Commons and medical Members of the House, such as Sir Watson Cheyne, have been able to exert a salutary influence in moulding the Ministry of Health Bill and defending the practice of vivisection. But the House of Commons ought to include many more exponents of medical thought.

Not less important is it that the profession should have its spokesmen in the House of Lords. That House may undergo considerable modification in a not distant future, but in any case its work as the revising chamber must always be of great importance, and I hold that it ought to include at least half a dozen men who could speak with authority in behalf of enlightened medical thought.

Nor ought the medical view to lack direct expression on those local authorities that carry out the detailed administration of public health law. The Labour party is said to be laying its plans to dominate these bodies. If so, it is an eminently wise ambition. You will not have forgotten that in his famous "parish pump" speech Lord Rosebery tried to bring the country to a sense of the first-rate importance of local administration—not very effectually, it is to be feared, for in many areas, especially in London, the vast majority of the ratepayers take not the faintest interest in their local authorities, and hardly know when an election is in progress. Dr. Rowland Fothergill has recently urged the profession to take steps to secure representation on local authorities, and it seems to me that the advice should be followed. The difficulties in the way of medical representation in the House of Commons and on these local bodies are obvious. The demands made upon the time and energy of those who represent popular constituencies in the House of Commons are most exorbitant. As to local authorities, it is easy to understand the aversion with which most medical men regard local electioneering, into which personalities and pettinesses so frequently enter. I would suggest, however, that the end to be gained is worth the sacrifice. There is no lack of medical men who have the necessary aptitude for the work, and I suspect that those who have established a reputation for highmindedness and discretion might find it easier to secure the suffrages of their neighbours than they suppose.

History of the Federation Movement.

And now, gentlemen, I come to the point to which these observations are intended to lead up—the need for such an organisation of the profession as will impart to it the power that comes from unity. It has recently been borne in upon many of us that the absence of a federation commanding the confidence and support of practically the whole profession, a federation which could speak not only for medical but also for ancillary institutions when legislation affecting their interests was projected, which, further, could invite the active coöperation of lay associations that have to do with matters of public health, is an immense disadvantage. It is to supply this lack that the British Federation of Medical and Allied Societies has been formed.

Let me remind you of its origins. The movement out of which it has evolved was the outcome of a widespread feeling that means ought to be devised for increasing that Parliamentary representation of the profession which is an urgent necessity of the times. In October of last year an open meeting of medical men was called which, at the instance of Dr. Addison, then President of the Local Government Board, now Minister of Health, passed with unanimity a resolution declaring "That in the interest of the national health it is essential that the considered views of the medical profession should be voiced by representative medical men in the House of Commons." That was the single and specific object which was contemplated at the outset. As the result of the resolution a provisional Parliamentary Committee was appointed. That committee clearly did some hard thinking, which led it to favour the formation of a permanent Committee representative not only of medical but also of allied societies and institutions, such as those charged with the interests of the dental, pharmaceutical, and nursing professions and those whose business it is to promote public health. It therefore organised a conference to which the various medical and allied institutions were invited to send representatives. The conference was held in May, under the presidency of Sir Watson Cheyne, chairman of the temporary Parliamentary Committee. The need for an organisation which could speak for the profession as a whole, as well as for allied professions, could supply material for the formation of expert opinion to all the societies concerned, and could promote the election of medical Members of Parliament and keep in touch with them when elected, was recognised. It was felt that such an organisation would be able to help Parliament in legislating for the health of the nation, and that in time it might initiate as well as help to shape reforms. Hostility towards, or even rivalry with, the British Medical Association or any other society was expressly disclaimed. At the same time, the feeling was all but universal that no existing society was capable of being transformed into such an institution as was required. Dr. Arthur Latham, one of the secretaries of the committee, and now a vice-chairman of the federation, only said what is self-evidently true when he declared of them generally that they had too much work arising out of their own special aims to be able to promote political developments, and that, moreover, they lay under the suspicion—whether justly or unjustly I need not attempt to determine—of seeking to further interests of the profession at the expense of the public. "We shall never," he added, "have political power until we get the public on our side, and that will happen when we approach the public through a body which is recognised as looking after the community rather than after the doctor. And this is the right order, for the interests of the doctor will be cared for if the interests of the community are met; the mistake the medical profession has made in the past is that they have not led the public to understand that the interests of the profession are wrapped up in the interests of the community."

The upshot of the conference was the appointment of a permanent Medical Parliamentary Committee, to be constituted of representatives of existing medical, dental, pharmaceutical, nursing, and midwifery societies, and those concerned in public health questions or interested in medico-parliamentary activities, with all medical Members of Parliament and the editors of approved medical journals and similar publications. In addition, the permanent committee was to comprise members coöpted by the committee itself, not exceeding 20 per cent. of the representation. Later there were to be added directly elected representatives of the whole medical profession and approved allied bodies. Further, the permanent committee was authorised to appoint an executive consisting of not more than 20 members, of whom not more than one-fourth were to be consultants.

It was left to the provisional committee to give effect to the decisions thus arrived at, and in July the new committee reported that as many as 47 medical and similar societies had accepted representation. It had been found that the name Medical Parliamentary Committee gave rise to misunderstanding and excited prejudice, and the new body therefore adopted the designation of "The British Federation of Medical and Allied Societies." So the Parliamentary Committee passed from the scene and gave place to the federation, which is to be an incorporated association, limited by guarantee, and having no share capital under the Companies Acts, and is to be registered under the Board of Trade (Section 20), with limited liability. Within a few months, then, a movement started to promote the election of medical Members of Parliament so enlarged its scope as to furnish the nucleus of an organisation which aims at the federation of all medical and ancillary institutions, so that regular communication between them may be established and action in common taken on every appropriate occasion.

"Ways and Means."

A word now about "ways and means." To cover the estimated expenses of the first year, by the end of which it is expected that the federation's revenue will suffice to meet the expenditure, a guarantee fund of 2000 guineas has been raised. Apart from any donations that may come in, the income will be furnished by entrance fees and annual subscriptions. The amount of the annual subscription is still under consideration.

It should be clearly understood that the federation has no wish to limit the independent action of the constituent bodies, still less to supersede them. In all matters in which a society considers that its own representations to the Government are sufficient it will make them independently. It is only when there is reason for bringing greater pressure to bear than can be exercised by any one society that questions will be referred to the federation. The Executive Committee will then elicit the views of all the other constituent bodies, and where a common feeling is found to exist the federation will give it authoritative expression. Is it not to the obvious advantage of any organisation, even to one so powerful as the British Medical Association to join the federation and so have its influence strengthened by the concurrent influence of other medical and ancillary bodies? And as each constituent body will thus enjoy the advantages of associated action, so also will it have the privilege of aiding every other constituent body by adding its authority to the common stock.

Practicability of the Scheme.

There may be those who think that while the aims of the federation are unexceptionable, they are impossible of realisation. When, under the pressure of ill-health and Parliamentary duties, Sir Watson Cheyne was compelled to resign the chairmanship of the Parliamentary Committee and I was invited to fill the vacancy, you will not be surprised that I asked myself whether this scheme was practicable. After due consideration, and with a full appreciation of the obstacles that have to be surmounted, I answered the question affirmatively. Am I unduly sanguine? I reply by asking whether, in the recent course of events, there is not a good deal to justify the optimistic mood. When the war broke out, what ground was there for hoping that within half a decade a Ministry of Health would be created? And when, in 1913, the profession demanded the appointment of a Royal Commission on Venereal Diseases, who could have believed that within half a dozen years the land would be covered with a network of clinics for the gratuitous treatment of those diseases? In both instances there appeared to be lions in the path, but no sooner were they faced than they turned tail and fled. So, gentlemen, it may prove to be here. The difficulties, I frankly admit, are formidable. There will be need for the exercise of tact, of patience, of persistence. Those qualities will, I am sure, not be lacking. I can testify that the spirit which animates the Executive Committee is a spirit of harmony, and of confidence tempered by caution. The profession now has such an opportunity of attaining unity as was never presented to it before. I cannot believe that it will be so blind to its highest interests as to fail to grasp the precious chance. If the peoples of the world, so widely sundered by race and temperament and secular antagonisms, can form a league of nations for the conciliation of clashing interests, is there not enough statesmanship among medical men to form a federation for action in common? This great profession—the most beneficent, I venture to assert, of all the professions—has never yet exerted its proper influence in the nation's life. Its course has been vexed and thwarted by cross-currents. It exists to heal the sick. Can it not heal its own divisions? Let it avail itself of the means now within its reach of speaking with one voice, and Parliament, I believe, will gladly accept its guidance in the things pertaining to the nation's health.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Royal College of Surgeons of Edinburgh and the Naval and Military Medical Forces of the Empire.

IT is appropriate that in Edinburgh appreciation of the splendid and humane work performed by the Medical Services of the Empire and of our Allies should be expressed. At a meeting of the Royal College of Surgeons of Edinburgh held on Oct. 15th the President moved that the following names, representative of all the branches of the Medical Services, be added to the roll of Honorary Fellows of the College for distinguished services in the Great War:—

Sir William Norman, K.C.B., R.N., late Director-General, Naval Medical Department.

Sir Robert Hill, K.C.M.G., C.B., C.V.O., Director-General, Naval Medical Department.

Lieutenant-General Sir T. H. John Goodwin, K.C.B., C.M.G., D.S.O., K.H.S., Director-General, Army Medical Department.

The Hon. Major-General William Rice Edwards, C.B., C.M.G., K.H.P., M.D., Director-General, Indian Medical Service.

Major-General G. L. Foster, C.B., Director-General, Medical Services, Overseas Military Forces of Canada.

Major-General Sir N. R. Howse, V.C., K.C.B., Director, Australian Army Medical Service.

Colonel W. H. Parkes, C.M.G., C.B.E., Director, New Zealand Medical Corps.

Colonel P. G. Stock, C.B., Director, South African Medical Corps.

Rear-Admiral W. C. Braisted, U.S.N., Administrative Head of the Medical Service of the United States Navy.

Surgeon-General M. W. Ireland, United States Army Medical Corps.

Médecin Inspecteur General Sieur, Member of the French Academy of Medicine and Professor of the Val-de-Grâce Military Hospital.

Lieutenant-General Leopold Melis, K.C.B., Inspecteur-General du Service de Santé de l'Armée Belge, Attaché à la Maison Militaire du Roi.

Maggiore Generale Commendatore Lorenzo Buonomo, Attaché to the Ispettorato di Sanità Militare, Rome.

Surgeon-Director-General Professor Tadao Honda, Director-General, Naval Medical Service (Japan).

This motion was unanimously carried with enthusiasm.

In referring in suitable terms to the personal career of each the President pointed out that the honorary Fellowship was very rarely awarded. Prior to the 400th year from the foundation of the College only about 34 honorary Fellows had been created, while in the last 14 years one addition had been made in the person of Lord Rosebery on the occasion of his opening the new hall and museum extension.

The Election of Direct Representatives on the General Medical Council: Dr. Norman Walker's Candidature.

At a meeting of the medical profession in Edinburgh, in support of Dr. Norman Walker's candidature for the position of Direct Representative in Scotland upon the General Medical Council, a letter was read from Sir Clifford Allbutt, in which the veteran professor of physic at Cambridge said: "For, I daresay, some ten years, I sat with Walker in Council, ever growing in respect for his sound and calm judgment, wide knowledge of affairs, and command of easy persuasive speech, which never failed of its influence." Professor Lorrain Smith, the chairman of the meeting, who read the letter, endorsed the statement as a former colleague of Dr. Walker on the Council.

The Candidature of Dr. Dewar.

Dr. Michael Dewar closed his campaign in this election last week by addressing meetings at St. Boswells and Stirling. He based his claims for election on the following grounds:—

1. That the 1886 Act was passed for the purpose of enabling the general profession to elect one of themselves as their direct representative.

2. That Scotland had not been represented by a general practitioner since 1906, and the 1886 Act had thus been a dead letter in that country for 13 years.

3. That he is a general practitioner in active practice and has been strenuously engaged for the last 17 years or more in furthering the interests of the profession.

4. That it is now time for the general profession to assert itself and take its share in the control of the general education of those proposing to enter the medical curriculum and in the medical education of students qualifying for registration as medical practitioners by returning one of themselves to the Council.

Inaugural Lectures by New Professors at Edinburgh.

Professor Barger, the occupant of the new chair of Chemistry in Relation to Medicine at Edinburgh, gave his inaugural lecture on Oct. 21st. Speaking on the relationship of medicine and chemistry in the past, he drew attention to the advantages which clinical medicine and pathology had derived from the introduction of suitable methods of analysis, and of these he instanced bacteriology as one of the greatest. The functions of a university were twofold—to teach and to increase knowledge—and often professors had been too much occupied with lecturing to do themselves justice as original investigators. He emphasised the importance of original research, and expressed the opinion that a period spent in work of this kind should form the normal ending of a student's period of study. He hoped much from the institution of the new Ph.D. degree, to be given only for research.

Professor Meakins, first occupant of the Christison chair of Therapeutics, delivered his inangural lecture on Oct. 23rd, taking as his subject "The Influence of Edinburgh on McGill University and American Medicine." Professor Meakins outlined the development of medical education in Canada in the eighteenth century. The first native Canadian who went abroad for medical study was François Blanchet, who was born in 1776 and went to New York to obtain his education. He aroused the desire for foreign education in Jacques Labrie, who journeyed to Edinburgh in the latter years of the eighteenth century. On his return home Labrie entered politics, and it was to him that they were indebted for the institution of those tribunals which guard the honour of the medical profession in Canada. In 1744 James McGill was born in Glasgow; when quite a young man he went to Canada in search of fortune and engaged successfully in mercantile pursuits, notably in the North-West fur trade. He subsequently settled in Montreal, and on his death in 1813 he left his estate of Burnside, together with the sum of £10,000, for the foundation of an English-speaking university, one of the colleges of which was to be called McGill College. The Montreal Medical Institution, an active teaching body, and the first to attempt medical education in Canada, became the medical faculty of the new University. This institution was composed of men from the Edinburgh school, who brought from Edinburgh her methods of medical teaching, and from the very earliest up to the present they had continued on the foundation so truly laid. The early history of McGill University was a protracted struggle. Up to 1855, the principals of the University had been men of a theological training; they had striven to guide this young institution and at the same time to perform the duties of busy clergymen, and their efforts were not a success. With the appointment of Dr. Dawson, an Edinburgh graduate, a new era opened in Canadian medical education, and it was not long before McGill University came into prominence among the great seats of learning. The tradition that an Edinburgh graduate should hold this important position in Canadian education was still being unconsciously carried on, and quite recently Sir Auckland Geddes had been offered and had accepted the principalship. In the last hundred years there had been few exceptions to break a steady line of Edinburgh and McGill men occupying professorial positions at the McGill Medical School.

Glasgow University.

The report of the Business Committee to the General Council of the University say that though the war has closed the University continues to work under emergency conditions, owing partly to members of the teaching staff being still on service abroad, and also to the greatly increased number of students requiring special arrangements for their instruction.—The Roll of Honour shows that no fewer than 3420 graduates, students, &c., have been on service, and of these over 570 have fallen, and over 700 were reported wounded or missing. Some 340 received military distinctions and honours, and over 200 were mentioned in despatches. At least 1200 cadets of the O.T.C. received commissions, the total who served as officers approaching 2700 in all.—Matriculation for the current session ended on Oct. 23rd, and the enrolments have reached the record total of 2736. The

previous highest figure was 2200 prior to the institution of the preliminary examinations in 1892. For the winter session immediately preceding the outbreak of war the total was 2181.—The result of the election for the new Lord Rector was announced on the 25th, Mr. Bonar Law being the successful candidate. The figures were:—Mr Bonar Law (Coalition), 1073; Professor Gilbert Murray (Liberal), 726; Hon. Bertrand Russell (Socialist), 80.

Royal Maternity Hospital, Edinburgh.

Dr. William Fordyce and Dr. J. Lamond Lackie have been appointed ordinary physicians to the hospital, in place of Dr. F. W. N. Haultain and Dr. J. W. Ballantyne, who retire on completion of the usual period of service. Dr. Ballantyne remains in the service of the hospital in connexion with the ante-natal work, with which his name has so long been associated.

Aberdeen University Council: Election of Assessors.—War Memorial Scheme.

At the one hundred and nineteenth statutory meeting of the General Council of the University of Aberdeen, which was held in the Mitchell Hall on Oct. 18th, Dr. John Scott Riddell and Dr. George Smith, director of studies, Training Centre, Aberdeen, were by a majority of votes elected as assessors to serve for four years, and the Rev. James Smith and Mr. D. M. M. Milligan, advocate, were elected to serve for two years. The chairman submitted a report on behalf of the War Memorial Committee, proposing that the memorial to the 301 students and former students who had fallen during the war should take two forms—namely, a record in book form of all who had served in the forces during the war who were connected with the University, in which it was proposed to print short biographies and portraits of each and of monuments at King's College and Marischal College. At King's College the antichapel was to have the names of the fallen on the walls, a stained-glass window was to be placed in the chapel, and it was also hoped to restore the original east window. At Marischal College it was proposed that a porch of a memorial design should be added at the foot of Marischal Tower. The sum required to carry out these proposals is estimated at from £9000 to £10,000. It was agreed by the business committee not to dissent in a general regulation ruling that, after Jan. 1st, 1921, the preliminary examination in medicine would be the same as that for arts and science.

Bequests to Aberdeen Medical Charities.

The late Mr. David Graham has left the following legacies, free of legacy duty—viz.: to the Aberdeen Royal Infirmary, £1000; Morning Hospital, £250; Royal Aberdeen Hospital for Sick Children, £500; Aberdeen Eye Institution, £250; Aberdeen District Nursing Association, £250. The Aberdeen Royal Infirmary will also benefit by one-half of the residue of the estate of Mrs. Barbara Mitchell or Shiach, 26, Mount-street, Aberdeen.

Oct. 27th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal College of Physicians of Ireland.

AT the annual meeting of the Royal College of Physicians, held on St. Luke's Day, Dr. James Craig was unanimously elected President. Dr. Craig is King's professor of medicine in the School of Physic, a physician to Sir Patrick Dun's Hospital, and to His Excellency the Lord Lieutenant. He was for many years registrar of the College.

The House of Industry Hospitals.

The refusal of the Government to take any responsibility for the liabilities incurred by the governors of the House of Industry Hospitals as recorded in THE LANCET some months ago, has compelled those in charge of the hospitals to decide to manage them on different principles from those formerly in force. The new policy has been laid down in a letter to the daily press from the secretary of the hospitals. In future it is intended to charge fees sufficient to pay for maintenance to all patients able to pay them. It is hoped in this way to cater for a class of patients who have hitherto been reluctant to seek hospital treatment. Urgent cases will not be refused admission even if no fees can be paid, and it is hoped after a time to increase the number of free beds. It is not stated whether the patients who pay the hospitals for their maintenance are also to pay fees to the staff for their medical treatment. It is clear that the policy adopted under stress of necessity by the House of Industry Hospitals raises far-reaching questions which affect all the Dublin hospitals. The number of people requiring hospital treatment, and unable to pay anything, is very large in Dublin, and the strict limitation in the number of free beds in the House of Industry Hospitals will entail a greater pressure on the free beds in the other hospitals, as well as on the Poor-law infirmaries. Up to the present the voluntary hospitals have been ostensibly charitable institutions for the treatment of the poor, and few patients made any contribution. If now they are to be a convenience for the middle class, what is to become of the sick poor, and in what relation are the hospital physician and surgeon to stand to the outside practitioner? Within the past few days the Lord Lieutenant has nominated a new board of governors for the House of Industry Hospitals. It is interesting to note that the board now includes all "the full" staff, to whose energies, indeed, the continued existence of the hospitals is due.

Scarlatina Epidemic in Belfast.

There are now over 900 cases of scarlatina in Belfast, and both the municipal fever hospital at Purdysburn and the union workhouse fever hospital are full. At a meeting of the guardians on Oct. 21st—when it was reported that there were 576 scarlatina cases in the union workhouse fever hospital, 21 of whom were admitted the previous night—it was decided to notify the public health committee that they must be responsible for any further cases of the epidemic. The public health committee, faced with such a serious contingency, made application to the military authorities for the use of the old asylum buildings in the Grosvenor-road, where at present 80 or 90 soldiers suffering mentally are under treatment. It was thought these cases could be treated at the Craigavon or Hilden Hospital, but as this suggestion has not been successful there is to be another conference to see if the guardians and the public health committee cannot come to an amicable agreement, so that arrangements can be made to treat all the cases. Some writers urge closing the schools, but it appears that, out of 60 schools affected, not more than one or two children in each have been reported. Of 300 schools in Belfast one-third of them have not had a single case. Other writers think the usual public health methods for keeping in check such epidemics having failed, an attempt should be made by research work to find out the reason of failure, and to discover something definite about the cause of scarlatina, how it is spread, and why it prevails in certain towns, like Belfast. At a special meeting of the Belfast guardians, held on Oct. 27th, after a long discussion, it was decided, in view of the statements made by a deputation from the public health committee, to grant 55 more beds for the present, but the guardians emphasised the fact that the corporation must make more provision for dealing with such epidemics in the future.

The Omagh Board of Guardians.

There was an extraordinary occurrence on Oct. 26th at a meeting of the Omagh board of guardians, called to appoint a medical officer for the Omagh No. 1 Dispensary District. There were two candidates—Dr. Bernard Lagan and Mr. James A. Cunningham. After the vote was taken the chairman announced that the latter had received 41 votes and the former 39. This was challenged by the supporters of Dr. Lagan, and a wild scene ensued; blows were struck and strenuous fighting took place round the chairman and over the reporter's table, pandemonium reigning for an hour. Amidst the din the assistant clerk said, according to his count, each candidate had received 40 votes. This announcement was received with loud enthusiasm by Dr. Lagan's supporters, and, finally, the chairman, accepting the assistant clerk's count, said the appointment would have to be adjourned. Eventually, by 41 to 39 votes, it was decided to put off the appointment for four weeks when it is to be hoped that the proceedings may be conducted with something more approaching decorum.

Oct. 28th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Influenza in India.

FROM the latest influenza statement prepared by the Sanitary Commissioner with the Government of India it would appear that Madras has been suffering more severely from the disease than any other large centre of population in India. During the week ending August 29th 97 influenza deaths were reported in that city, while in the week ending August 30th 17 were reported in Bombay city, and in the week ending August 23rd 46 occurred in Calcutta. The epidemic in Burma is said to be definitely abating, though 58 deaths were reported in Rangoon during the week ending August 23rd.

The Epidemic Diseases Act has been applied to the provinces of Burma, Bihar, and Larissa, where outbreaks are feared.

Health in Calcutta during 1918.

The report of the municipal administration of Calcutta for the last year, just issued, says that the year 1918 was an abnormal year from a public health point of view, and coming immediately after the healthiest year on record the differences are strongly accentuated. In the early months of the year there was a considerable influx of the panic-stricken emigrants from badly infected centres of plague who brought infection with them, intensified overcrowding, and helped to swell the mortality, particularly from small-pox and plague. In the middle of June influenza broke out in an epidemic form, and although it subsided after a few weeks there was a severe recrudescence in October which lasted throughout the year. Its effects are reflected in the vital statistics. About a fourth of the year's mortality is due, directly or indirectly, to this epidemic.

The total number of births registered was 18 166, as compared with 18 807 registered in the previous year; the total number of deaths registered during the year was 31,371, as against 21 360 registered in 1917. This is equivalent to a death-rate of 35 per 1000, which is the highest recorded since 1907. The Calcutta Corporation has appointed a committee to consider the whole question of providing sanitary buildings or building sites for persons of moderate means in suitable localities. For 20 years the corporation has done nothing to give effect to the provisions of the Act which authorises such action.

Sickness in the Afghan War.

The following statements are published for the period May 5th to August 9th. The total admissions to hospital were 10 882 British and 45.774 Indian troops and followers giving daily admission rate per 1000 of strength of 4·98 British and 2·97 Indians. The deaths from disease were 12 officer and 77 other ranks British, total 89; and 9 officers and 1260 other ranks and followers Indian troops, total of 1269 Indian. Total deaths, British and Indian, 1358. The deaths per 1000 admissions to hospital (excluding wounds) was British 0·82, Indian 27·74. These ratios may be compared with similar ratios for other forces engaged on active service during the same period of the year in India or in the East on former occasions, as follows:—

	Daily admission rate per 1000.		Mortality per 1000 admitted to hospital.	
	British.	Indian	British.	Indian.
Indian Frontier, May 5–Aug. 9, 1919	4·98	2·97	0·82	27·74
Mesopotamia ,, ,, 1917	5·04	2·11	19·30	15·96
Mesopotamia ,, ,, 1918	3·45	2·27	7·41	20·51
East Africa ,, ,, 1918	—	3·58	—	14·13
South Persia ,, ,, 1918	7·55	4·88	5·55	11·37
Waziristan, June 1–July 15, 1917 ...	9·68	3·77	7·11	16·69
Tirah Campaign, Oct.–April, 1897–98	4·25	2·80	19·03	63·87

The relatively high cases of mortality amongst Indians is due to the relatively high incidence of cholera, especially amongst Indian followers. If cholera cases and deaths (Indians) are excluded the case-mortality from other causes is 14·9 per 1000, a figure which is, with one exception, lower than the record for any of the operations included in the above table.

Heat-stroke on the Frontier.

The deaths from heat-stroke during the recent Afghan War per 1000 do not compare unfavourably with the deaths from that cause during the same period in 1918 in Mesopotamia when a heat-wave of similar intensity prevailed in that country.

Deaths from Heat-stroke per 1000 Strength.

	British.	Indians.
Indian Frontier, May 5th to August 9th, 1918	1·16	0·89
Mesopotamia, May to August, 1918	6·04	0·30

The actual deaths from heat-stroke were: British 26, Indian 140; total 166.

Small-pox in Ootacamund.

An effort is being made to organise more effective measures, precautionary and preventive, for combating small-pox, which has been prevalent since January last and which in recent months was threatening to develop into an epidemic. Since January last there has been 1·32 attacks, out of which 59 have proved fatal. The total number of vaccinations during the period was 1542, more than half of this number having been in July. It is expected that revaccination will be more vigorous in the future, as Government have sanctioned a reward of 8 annas to every individual submitting himself to revaccination.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Medical Treatment for Pensioned Soldiers and Sailors.

AN Order has just been issued fixing the details of application of a law passed last March, by which all pensioned soldiers and sailors are entitled for life to gratuitous treatment and drugs in respect of future sequelæ to the wound or illness for which the pension was allotted. Treatment will be given at military hospitals where possible; where these do not exist, at civil hospitals near the pensioner's home, or if necessary by doctors whose fees will be paid by the State at the recognised tariff for gratuitous medical aid. It is impossible to estimate the total to which expenses arising out of this Order will amount in years to come, but it will certainly be very high.

Reorganisation of the School of the Service de Santé Militaire.

A reorganisation of the school of the Service de Santé Militaire has just taken place. Students will now take the first two years of their course in their own provinces, and the next two at Lyons, where they will join civilian medical students in all classes, and will be entitled to become "externes" and "internes" in civilian hospitals. When qualified they are to proceed to Paris for a year's special training in military work. Some criticism has been levelled against this scheme in military medical circles, where it is feared that those who have held posts in civil hospitals may acquire undue prestige and receive more rapid promotion than their less fortunate colleagues. On the other hand, civilian practitioners who have suffered from the exclusive attitude of military doctors during the war are on the whole in favour of the new arrangement, hoping that a more cordial feeling may arise between civilian and military medical men as a result of their close association as students.

Industrial Diseases.

The Senate and the Chambre des Députés have just adopted a law placing industrial diseases on the same footing as accidents to workmen. The victims of disease will thus obtain the same benefits as those sustaining accidents, in so far as the responsibility of the employers is legally recognised for both. Insurance companies covering employers' liabilities will thus have to raise their tariffs once again.

The Early Diagnosis of Cancer.

In the course of a recently delivered lecture M. Regnault pointed out that nearly all natural phenomena depended on vibrations of different wave-lengths, perceptible either by our senses or by delicate instruments. Thanks to the delicacy of Abram's visceral reflexes, quite a number of vibrations that have hitherto escaped observation can now be detected. All functioning organs are surrounded by a field of electrons; cancer in the process of active proliferation is surrounded by a very powerful one, specially

characterised by marked polarity and by waves attuned to the patient, or any other individual to whom the electronic influence can be applied. According to M. Regnault, one can now recognise the malignancy of a tumour and define the limits of its invasion, and cancer may thus be diagnosed at its onset and operated on under the best possible conditions. Researches now in progress on the polarity of the energy liberated by cancer, and on the receptivity on the part of the tissues, foreshadow the possibility of the limitation of the growth and destruction of the malignancy of the tumour without resorting to operative measures.

Oct. 25th.

MEDICINE AND THE LAW.

A QUESTION OF CERTIFICATION.

IN the spring of the present year an inquiry was held at Widnes under Article 71 of the National Health Insurance (Medical Benefit) Regulations, 1913, into a complaint lodged by the National Amalgamated Approved Society against two medical practitioners, Dr. S. Porterfield and Mr. S. McCausland, in connexion with certificates of incapacity given by them to insured patients—members of the society. The two gentlemen named are partners, having at the times in question about 2850 and 1100 insured patients respectively on their lists, and during part of the period covered by the charges, before the return of Mr. McCausland from military service, and in the absence of another practitioner temporarily away, Dr. Porterfield was responsible for the medical attendance of something like 15,000 persons.

The Cause of the Complaints.

All the complaints had reference to the same point, a familiar one to all who are engaged in insurance work, the issuing of certificates of incapacity on Form Med. 40 to insured persons who had not, in fact, been examined by the practitioner on the dates stated on the certificates. They were limited to this. There was no suggestion that any patient had a certificate who was not entitled to one, and, as the Inquiry Committee expressly found in their report, the periods during which the irregularities complained of occurred synchronised with two epidemics of influenza at Widnes. That certificates were given which referred to patients who had not been seen by the signatory upon the dates stated in the document was admitted by both practitioners, and Dr. Porterfield further explained with regard to some of these that they were issued for him by a lady clerk during one of the influenza epidemics in August and September, 1918. It was an expedient devised to meet an overwhelming pressure of work, and they were issued to patients whose disability could not be in doubt, whether they were seen or not. They were, in fact, respectively cases of chronic endometritis with prolapse of uterus, cerebral hæmorrhage, tuberculous disease of the hip, epilepsy, chronic bronchitis, and dementia, the sixth, if not quite in the same category as the others, being a case of pregnancy. Five charges out of a total of 20 were withdrawn. As an example of the others may be cited one of influenza in which a final certificate, dated Feb. 22nd, was signed by Dr. Porterfield on information given by Mr. McCausland, who had seen the patient on the same day. Among the strongest cases against the two medical men was one in which Dr. Porterfield saw a female patient on August 16th, 1918, and did not see her again until three weeks after her confinement, which took place on August 23rd. Meanwhile he signed certificates for her which on August 16th and 23rd stated rheumatism, for which he had attended her for a long time, as the cause of her incapacity. In another, a patient who had long suffered from piles, when, in February, 1919, a recurrence of these took place, could not wait in a queue of two or three hundred persons at the surgery, and received from Mr. McCausland certificates without being examined.

Finding of the Inquiry Committee.

That no serious result in the way of loss to the society took place is thus obvious, and in the circumstances it might have been thought that that body would have recognised the extraordinary demand upon the doctors' services, a demand which rendered accurate clerical work of secondary importance. By its report the Inquiry Committee recognised that there were beyond question breaches of the regulations, and that the medical men had failed to meet the situation by modifying the official form so as to accord with the facts. It also found, however, that the local officials of the society for their part had failed to appreciate the necessity for lessening the strain of clerical work, if attention were to be given, as far as possible, to the sick during the influenza epidemic, and delay in the issuing of certificates avoided. The following finding is worth quoting:—

> "It seems to the Inquiry Committee not unreasonable to imagine that in the crisis caused by the influenza it might have been possible for the local officials of the Approved Society to have made some arrangements for the purpose of lightening the burden of certification, which rested upon the shoulders of these doctors, but no evidence of any action in this direction was given before us."

Finally the Committee recommended that Dr. Porterfield and Mr. McCausland should bear some part of the society's costs in presenting the case, so far as it dealt with complaints as to the year 1919.

The Insurance Commissioners' Decision.

The Insurance Commissioners, in announcing to the solicitors for the society their decision to take no action upon the report of the Inquiry Committee, fixed the contribution of each medical man to the society's costs at £20. Their letter also commented on the question of strict adherence to the rules in giving certificates, and upon the difficulties arising out of the influenza epidemic combined with the shortage of doctors. As to the former, the Commissioners refused to recognise ignorance of the rules under the Insurance Acts as justifying departure from them on the part of medical men undertaking insurance work, and said:—

> "Neither doctor had, in fact, taken the trouble to make himself acquainted with the actual provisions of the rules, or with the system on which they are based, or the objects at which they aim. Consequently neither doctor appreciated, or was in a position to appreciate, the possibility of issuing certificates in an emergency of this nature, which if they did not conform strictly to the rules would at least have substantially safeguarded the interests of the Approved Societies concerned."

As to the second point, the Commissioners regretted that, whereas it had been found possible in many areas by means of cordial coöperation between society officials and doctors to surmount the difficulties to which the exceptional conditions prevailing in the period involved gave rise, more successful efforts in the same direction were not made at Widnes.

Comment on the Case.

Comment in the circumstances can hardly go further than to call attention to the facts summarised above and to the observations of the Inquiry Committee and of the Insurance Commissioners. No one can suggest that Dr. Porterfield and Mr. McCausland did anything that was detrimental to the interests of their patients or of the National Amalgamated Approved Society. Nor did they do anything that an absolutely honourable medical practitioner might not do at any time in the pressure of overwork, and when engaged in fighting for his patients' lives and health against such epidemics of influenza as have recently visited us. At ordinary times the giving of certificates in accordance with the regulations is one of the duties which a medical man accepts when he places his name upon the panel. In extraordinary times there are ways in which strict compliance with the regulations may be waived, as a matter of temporary relief, and as a matter of arrangement between those concerned. Probably in the pressure of their work, and under the paralysing influence of an overwhelming outbreak of disease, neither of the medical men in question ever had time to review the situation calmly or to think out the best plan and negotiate. Both will certainly have made ample amends in paying what is in substance a fine of £20 to the complainants. If the officials of the society on their part had had sympathetic consideration for Dr. Porterfield and Mr. McCausland, to say nothing of their patients, they need not have involved the two medical practitioners and themselves in costly and wholly unprofitable proceedings.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

Feb. 28th, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Carbonaceous other than tar	Ash.	Soluble matter. Loss on ignition.	Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	40	0·21	2·32	6·82	1·28	4·32	14·95	1·80	0·71	0·04
Embankment Gardens	29	0·16	2·79	9·02	3·43	5·76	21·15	3·37	0·69	0·06
Finsbury Park ...	69	0·20	2·22	7·06	4·82	7·28	21·59	4·91	1·03	0·09
Ravenscourt Park	41	0·20	1·52	3·13	3·48	5·12	13·45	3·67	1·47	0·09
Southwark Park	28	0·30	3·18	6·91	5·50	8·72	25·00	6·67	1·37	0·36
Victoria Park* ...	—	—	—	—	—	—	—	—	—	—
Wandsworth Com.	18	Nil	0·16	0·42	0·78	1·48	2·84	1·01	0·45	0·04
Golden Lane ...	59	0·10	5·36	6·49	1·88	4·95	18·79	2·55	0·94	0·21
Malvern*	—	—	—	—	—	—	—	—	—	—
Manchester—										
Whitworth Street (garden)*	—	—	—	—	—	—	—	—	—	—
,, (roof of College)*	—	—	—	—	—	—	—	—	—	—
Newcastle-on-Tyne	29	0·06	2·79	4·35	2·46	2·91	12·56	1·38	0·43	0·12
Rochdale[1]	—	—	—	—	—	—	—	—	—	—
St. Helens	41	0·24	2·27	4·94	4·36	9·73	21·54	4·59	2·31	0·05
Southport—										
Hesketh Park ...	28	0·01	0·52	0·54	0·27	1·91	3·25	1·08	0·21	0·00
Woodvale Moss...	24	—	—	—	—	—	2·69	—	—	—
SCOTLAND.										
Coatbridge	12	1·48	3·33	2·40	3·32	3·14	13·67	1·44	0·15	0·02
Glasgow—										
Alexandra Park...	18	0·12	3·43	4·37	1·15	2·27	11·34	1·26	0·13	0·05
BellahoustonPark*	—	—	—	—	—	—	—	—	—	—
Blythswood-sq. ...	21	0·19	2·91	5·04	2·48	3·28	13·90	2·07	0·20	0·10
Botanic Gardens	31	0·12	3·50	4·64	2·79	5·77	16·82	3·20	0·14	0·11
Richmond Park*	—	—	—	—	—	—	—	—	—	—
Ruchill Park ...	22	0·03	1·66	2·30	1·40	1·85	7·24	1·17	0·12	0·06
South Side Park.	20	0·06	1·43	2·32	1·96	2·76	8·53	1·87	0·09	0·15
Tollcross Park* ...	—	—	—	—	—	—	—	—	—	—
Victoria Park* ...	—	—	—	—	—	—	—	—	—	—

March 31st, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Carbonaceous other than tar	Ash.	Soluble matter. Loss on ignition.	Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office*	56	0·13	1·71	5·29	1·66	2·92	11·61	1·17	0·75	0·05
Embankment Gardens	62	0·11	19·06	12·33	5·92	7·50	44·93	4·55	1·52	0·17
Finsbury Park ...	165	Nil	1·12	3·42	4·40	6·68	15·62	4·16	1·20	0·08
Ravenscourt Park	79	0·15	1·16	2·62	3·54	5·57	13·03	3·78	0·84	0·10
Southwark Park...	84	0·13	2·36	4·70	17·91	5·16	30·24	16·66	1·33	1·26
Victoria Park ...	21	0·04	1·43	3·04	1·14	1·38	7·02	0·87	0·26	0·02
Wandsworth Com.	6	Nil	Nil	Nil.	0·34	0·40	0·74	0·30	0·08	0·01
Golden Lane ...	52	0·07	2·95	3·81	2·47	4·28	13·58	2·49	0·99	0·17
Malvern*...	—	—	—	—	—	—	—	—	—	—
Manchester—										
Whitworth Street (garden)*	—	—	—	—	—	—	—	—	—	—
,, (roof of College)*	—	—	—	—	—	—	—	—	—	—
Newcastle-on-Tyne	55	0·17	7·15	12·94	2·40	4·58	27·24	1·93	0·77	0·12
Rochdale[1]	—	—	—	—	—	—	—	—	—	—
St. Helens	96	0·07	2·22	3·31	2·39	7·17	15·17	3·41	1·43	0·01
Southport—										
Hesketh Park ...	133	0·02	0·59	1·17	1·66	4·28	7·72	2·17	1·39	0·01
Woodvale Moss...	107	—	—	—	—	—	6·41	—	—	—
SCOTLAND.										
Coatbridge	33	—	—	—	3·37	5·62	—	2·73	0·20	0·27
Glasgow—										
Alexandra Park[2]	52	0·04	1·61	2·63	1·93	3·06	9·27	1·76	0·47	0·10
Bellahouston Park[2]	79	0·04	1·57	2·69	3·60	6·15	13·75	2·99	0·38	0·10
Blythswood sq. ...	80	0·29	2·67	4·40	3·72	5·12	6·20	3·52	0·53	0·21
Botanic Gardens	98	0·11	1·33	3·72	4·82	7·26	17·23	4·78	0·45	0·17
Richmond Park...	61	0·09	1·88	3·03	3·29	4·61	12·90	3·32	0·32	0·16
Ruchill Park ...	83	0·11	2·19	3·26	2·01	4·08	11·65	2·71	0·45	0·14
South Side Park[3]	79	0·06	1·44	5·38	2·29	5·15	14·32	2·81	0·35	0·13
Tollcross Park ...	61	0·08	1·76	4·33	2·10	5·00	13·27	2·95	0·38	0·16
Victoria Park[2] ...	98	0·04	1·29	2·55	3·95	7·88	15·71	5·44	0·56	0·13

* No returns. [1] Gauge interfered with. [2] Lead present. [3] Carboy had strong odour of phenol and lead present in deposit.

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9 lb. per acre: (*b*) 2·56 English tons per sq. mile; (*c*) 1 g. per sq. metre; (*d*) 1/1000 mm. of rainfall.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables. The analyses of the rain and deposit caught in the gauge at the Meteorological Office are made in THE LANCET Laboratory.

TUBERCULOSIS.

Pulmonary Tuberculosis: Mortality after Sanatorium Treatment.

Dr. N. D. Bardswell and Mr. J. H. R. Thompson, F.I.A., have published, under the auspices of the Medical Research Committee, a report[1] on mortality after sanatorium treatment, with special reference to the experience gained at the King Edward VII. Sanatorium, Midhurst. Since 1914 a special clerk has been employed at Midhurst solely to trace and keep in touch with ex-patients; by this means the proportion of patients lost sight of has been reduced to 3·5 per cent. The method of investigation adopted was that employed by Elderton and Perry in their study of the data obtained from the Adirondack Sanatorium. The material analysed consists of 1707 patients discharged from the sanatorium in the eight-year period 1907–1914, the males numbering 1053, the females 654. The patients were grouped in three classes, according to the severity of the disease, the classification adopted being that of the Association for the Study and Prevention of Tuberculosis in America. It was found that the mortality in the first class was nearly six times, in the second class over 16 times, and in the third class about 38 times greater than the total mortality for the population of England and Wales. It was also found that the critical period for the patient is within the first two to three years of discharge; after this interval the mortality for patients in the first class is almost normal. A study of the cases in which the disease was first manifested by hæmoptysis showed that the disease was diagnosed earlier, and that the effect of treatment was better than for patients the onset of whose disease was more insidious. As for the significance of tubercle bacilli in the sputum, it was found that the prognosis is far worse for patients with than without tubercle bacilli, although the prognosis for the latter is much worse than for the whole community. This observation shows that although the finding of tubercle bacilli establishes the diagnosis beyond question, the disease is to be recognised with some measure of certainty in the absence of the specific organism. The interesting fact also emerges from this investigation that the prognosis for the patient with tubercle bacilli on admission, but not on discharge, is almost as good as for the patient in whose sputum the bacillus has never been found. This would suggest that sanatorium treatment should be continued till the bacilli have disappeared from the sputum. In the section dealing with inherited predisposition to tuberculosis the writers come to the conclusion that "having contracted pulmonary tuberculosis, patients with a consumptive family history enjoy the same chance of recovery as those who have no such history." The results of tuberculin treatment were found to be "distinctly disappointing." The general conclusion drawn from this investigation would appear to be that though the results of sanatorium treatment leave much to be desired, the findings of the investigators are not inconsistent with a belief in its utility.

[1] Pulmonary Tuberculosis: Mortality after Sanatorium Treatment. H.M. Stationery Office, 1919, pp. 112.

A Prospective Middlesex Sanatorium.

The Middlesex County Council propose purchasing Harefield Park, at a price not exceeding £31,000, with a view to converting it into a sanatorium. The estate comprises 122 acres, and in addition to the mansion there are the hutments used for hospital purposes by the Australian

troops. The usual local opposition to the establishment of a sanatorium has already found voice.

Tuberculosis in Cows.

In an address given on Sept. 11th by Mr. J. Malcolm, of the Veterinary Department of the Birmingham Corporation, the lack of effective legislative machinery to control bovine tuberculosis was emphasised. It was calculated that approximately a third of the cattle in this country are more or less tuberculous, but the extent of infection varies greatly in different herds. In one large herd in Staffordshire 84 per cent. were infected; in another herd in Warwickshire only 58 per cent. were infected. In the first case no steps had been taken to combat the disease, but the Warwickshire herd was dealt with by the authorities, and for some years it had been absolutely free from tuberculosis.

Devon Tuberculosis Colony.

In connexion with the allotment by the British Red Cross Society of £20,000 towards the provision of a Devonshire farm colony it is proposed that the colony shall be established in connexion with the county council's sanatorium at Hawkmoor, Bovey Tracey. The estimated initial cost is £38,000. The colony will be controlled by the public health committee of the county council, and will be organised as a self-contained village, with accommodation for both sexes. At first, however, it will cater only for men, who will be paid for their work, and who will have greater freedom than sanatorium patients. The whole community will be under the supervision of the medical superintendent of the sanatorium.

Opening of Kinver Sanatorium.

At the formal opening in August of Edge View Tuberculosis Hospital, Kinver, acquired by the Staffordshire, Wolverhampton, and Dudley Joint Committee for the treatment of advanced cases, it was stated that the premises now converted into a hospital had been taken over on a 21 years' lease at a rental of £160 a year. It had cost about £4000 to convert the building, originally erected as an hotel, into a hospital, with accommodation for 40 beds. The largest ward contains eight beds. The district is served by a light railway, and the hospital is situated at the base of the great sandstone ridge which terminates abruptly above the river Stour. The county medical officer, Dr G Reid, expressed the hope that the erroneous impression that the hospital was intended for the dying would speedily be removed. It was also stated that Prestwood House, intended for early cases, might be ready for occupation in a year's time.

NOTES ON HOUSING.

Medical Appointments and the House Shortage.

MEDICAL men not only see the bad results on national physique of the house shortage, but they themselves are feeling its inconveniences. It is true that many doctors are their own landlords. The goodwill of a practice, particularly if long established, depends so much upon the place of the practitioner's residence, that it is usual for him, if he has the intention to settle down permanently, to secure himself by buying his house. But this custom has not been universal, and the war will have prevented some from following it, while others have been unable, when away on military service, to continue to pay high rentals, with the result that during their absence their residences have passed from them, with very destructive effect on their practice and any prospects of getting it together again. Everywhere except in big towns houses suitable for the work of a medical man have always been very limited in number. Thus house shortage makes it impossible for the changes in distribution of the population brought about by the war to have their medical needs properly served, and many a good opening for practice cannot be taken advantage of. The junior men suffer most. A striking thing is the difficulties thrown in their way when taking up the municipal medical appointments which have increased in number so much of late years. They often find themselves obliged to put up at local hotels, the cost of which way of living just now often exceeds their salary. Applications have recently been made for permission to reside at a considerable distance when travel to the locality just permits of a bare minimum of work being done.

Relaxation of Building By-laws.

The Ministry of Health issued a formidable array of regulations on Oct. 9th for the benefit of local authorities. The most important of these documents is probably *General Housing Memoranda No. 12*, which deals with Section 25 of the Housing and Town Planning Act. The object of this section is to give to local authorities a power, exercisable during the period of three years from July 31st, 1919, to allow the erection and use for human habitation of buildings of a kind which may not be permissible under existing by-laws, but which comply with regulations made by the Minister of Health. In these latter regulations a wide discretion is left as to the choice of materials and methods of construction. We find, however, that certain restrictions, doubtless for a very good reason, are imposed. There is, for example, a note in *Housing* for Oct. 11th to the effect that the combination of concrete and timber in the construction of walling is considered undesirable by the Ministry. It is not clear whether this decision rules out the type of house which is built of wood and bitumen sheeting and treated with cement on the outside. Some interesting experiments on these lines have been carried out recently by Sir Charles Ruthin in South Wales. Also, the committee appointed specially to investigate the matter has reported against the construction of purely wooden walls. Its conclusions appear to be based mainly on the grounds of cost. Only one-third of the total cost of a brick cottage consists in the cost of the brick "shell," and with present prices there would be little saving gained by making the shell of wood. The wooden house has a shorter life and a higher insurance policy. It is therefore rejected on the ground of extravagance. The great advantage of this type of building does not seem to have received very much consideration. No other kind of house can be put up with anything like the same speed. It is questionable whether in some parts, where ground rents are not high and where the shortage is most acutely felt, the extra expense of temporary wooden huts might not be justifiable.

The recommendations made by the Government are not all negative. A paragraph appeared in *Housing* on Sept. 27th recommending a new material named Wytchert; this is considered as suitable for use in the construction of cottages provided a brick, concrete, or stone base is built to the wall and the roof has good projecting eaves and the outside face of the wall is plastered.

The Right of Appeal.

Should private builders find their enterprise unduly curbed by restrictions from local bodies they have the right to appeal against local decisions directly to the Ministry of Health. A nominal deposit of £10 is demanded to prevent loss of time over frivolous appeals, though even this sum may be reduced or excused altogether in the discretion of the Ministry. It is to be hoped that medical officers of health will take advantage of these regulations to ensure that sanitary and desirable schemes undertaken by private enterprise shall not be obstructed or delayed by official action.

Housing Conditions in Durham.

Dr. Eustace Hill has recently drawn attention to the serious state of overcrowding which exists in the mining county of Durham. Even in 1911, the year of the last Census, only one-half the occupied houses in the county contained more than three rooms. To make the congestion still worse Durham has an exceptionally high birth-rate. In certain parts of the county overcrowding, as judged by the standard of two persons per room set by the Registrar-General, has been shown to be present in over 40 per cent. of the habitations. There is a high death-rate, especially among infants and young children, and Dr. Hill refutes the suggestion that this high death-rate may be due to maternal neglect. Durham mothers, he says, do not compare unfavourably with mothers in other parts of the country in the care of their infants and, for the most part, deserve praise for the care of their houses under the most depressing conditions. From a consideration of statistics Dr. Hill argues that the housing conditions existing in the county are "almost entirely responsible" for its bad health and high rate of mortality. The schemes at present advanced by local authorities make allowance for 15 000 new houses. Dr. Hill estimates that at least 50,000 are required. He insists also that larger and more sanitary buildings must be provided—there are already,

in spite of the general shortage, far too many two- and three-roomed houses in the county.

Dwelling-house v. *Picture Palace.*

Attention has been directed pretty generally to the fact that, while the house shortage remains as acute as ever, labour and materials are being expended on the construction of halls for amusement. The London County Council is considering a suggestion that no dwelling-house shall be demolished to furnish room either for a place of amusement or for business premises. In the Manchester city council great consternation was aroused last month by the discovery that only 12 bricklayers were at work on an estate where 78 cottage flats are in course of erection. At the present rate it is calculated that Manchester will take not three but 20 years to complete her scheme. In a leading article on Oct. 16th the *Manchester Guardian* points out that it is to the financial advantage of the contractor and of the workman to build halls for which the profit is not limited and to engage in in-door building which is not liable to be interrupted by the weather. Some readjustment of working conditions is necessary to attract labour for that class of work which is at present so vital to the community's need.

Lectures on Housing.

A course of lectures on Housing Problems and Town Planning in Relation to Public Health is being given at the Royal Institute of Public Health, 37, Russell-square, London, W.C., on successive Wednesdays at 4 P.M. during the months of October, November, and December. Dr. E. W. Hope dealt with General Principles on Wednesday last. Dr. W. G. Savage lectures on Housing Problems in Rural Districts on Nov. 5th. Other lectures will be noted in our Medical Diary.

The Services.

ARMY MEDICAL SERVICE.

Colonel H. V. Prynne, C.B.E., D.S.O., and Colonel W. T. Mould, C.M.G., retire on retired pay.

Temp. Col. H. H. Tooth, C.B., C.M.G. (Lieut.-Col., R.A.M.C., T.F.), relinquishes his temporary commission on re-posting.

ROYAL ARMY MEDICAL CORPS.

To be acting Lieutenant-Colonels whilst commanding Medical Units: Majors H. W. Farebrother, G. H. Stevenson, A. W. A. Irwin; Capt. and Bt. Major R. E. Barnsley.

Major R. G. Archibald, from half-pay list, retires, receiving gratuity.

Major C. Cassidy is restored to the establishment.

Capt. D. S. Martin relinquishes the acting rank of Major.

Capt. G. D. Harding to be acting Major.

Temp. Capt. H. S. Laird to be acting Major whilst specially employed.

To be temporary Majors: R. A. Beaver (late temporary Major); Temp. Capt. R. L. Davies (whilst specially employed).

Temp. Capt. C. C. de B. Daly relinquishes the acting rank of Major on ceasing to be specially employed.

Capt. T. P. Buist is seconded for service under the Civil Administration of Mesopotamia.

Capt. C. H. K. Smith, from T.F., to be Captain.

Late temporary Captains to be temporary Captains: C. W. C. Robinson, S. Wigglesworth, W. Reynolds, E. C. Arnold, J. Cross, R. F. Gill, F. M. Kirwan.

To be temporary Captains: Lieuts. C. V. Macnamara, J. C. Coutts, C. A. Whitfield, J. E. Rea; Temp. Lieut. M. D'Albon and J. P. Mitchell (Captain, Spec. Res.).

Lieut. (temp. Capt.) A. A. B. Scott to be Captain.

Temporary Lieutenants to be temporary Captains: A. H. Ward, A. R. Moore, M. Rust, C. A. D. Bryan, W. C. Morton, B. Dunlop, J. W. Clyne.

To be temporary Lieutenants: A. M. Moll, A. W. D. Magee.

Officers relinquishing their commissions: Temp. Lieut.-Cols. W. Wrangham and R. P. Catheart (and retain the rank of Lieutenant-Colonel); Temp. Hon. Lieut.-Col. H. Chafer (and retains the honorary rank of Lieutenant-Colonel); Temp. Major D. Embleton (Captain, R.A.M.C., T.F.). Temporary Majors retaining the rank of Major: G. H. Colt, R. W. Witham. Temporary Captains granted the rank of Major: J. H. H. Roberts, E. Biddle, A. R. Esler, J. W. Dew, Eric S. Marshall, A. C. Pickett (acting Major). Temporary Captains retaining the rank of Captain: H. B. Emerson, R. Y. Stones, H. V. Fitzgerald, G. C. Ramsay, N. Booth, D. C. Evans, G. Joughin, H. W. Hodgson, S. W. Coffin, J. B. Whitfield, G. A. Bird, A. J. Bennee, H. G. Sparrow, W. H. Ross, W. A. Ryan, J. M. Campbell, G. W. Christie, N. F. Hallows, P. Wallice, F. A. Mills, A. G. MacLeod, R. C. Crawfurd, G. E. Elkington, D. G. Halsted, J. A. MacLean, C. W. Wilson, T. H. Fowler, F. A. Grange. Temp. Hon. Capts. R. S. Bridges and C. Parmenter retain the honorary rank of Captain. Lieut. (temp. Capt.) D. J. Valentine.

Canadian Army Medical Corps.

Temp. Lieut.-Col. (acting Col.) T. J. F. Murphy to be temp. Colonel.

Temp. Major (acting Lieut.-Col.) W. J. McAlister to retain acting rank of Lieutenant-Colonel.

The undermentioned retire in the British Isles:—Temp. Lieut.-Col. M. H. Allen, Temp. Major N. J. Barton, Hon. Capt. H. G. Bayes.

South African Medical Corps.

Lieut.-Col. A. Blackwood Ward relinquishes his commission and retains the rank of Lieutenant-Colonel.

SPECIAL RESERVE OF OFFICERS.

Capt. W. B. Jepson relinquishes his commission and retains the rank of Captain.

TERRITORIAL FORCE.

Major (acting Lieut.-Col.) H. W. Williams relinquishes his acting rank on ceasing to be specially employed.

Capt. (acting Lieut.-Col) R. H. Bickerton relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Captains (acting Majors) relinquishing the acting rank of Major on ceasing to be specially employed: A. W. Paterson, K. F. R. Davison, R. P. Pollard, T. S. Elliot, R. D. Langdale-Kelham, B. J. Alcock.

Capt. (acting Major) F. W. Squair to be Major.

3rd London General Hospital: Capt. D. Embleton is restored to the establishment.

2nd Scottish General Hospital: Major (acting Lieut.-Col.) J. D. Comrie relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

ROYAL AIR FORCE.

Medical Branch.—The undermentioned are transferred to the unemployed list: Capt. A. H. Wade and Lieuts. E. F. Wilson and E. E. Rollins.

Dental Branch.—Lieut. G. O. Roper to be Lieutenant. The undermentioned are granted temporary commissions as Lieutenants: C. A. E. Cook, K. Batten.

INDIA AND THE INDIAN MEDICAL SERVICE.

Captain to be Major: G. E. Malcolmson.

Captains to be temporary Majors: E. R. Armstrong, E. E. Doyle, F. W. Cragg, A. D. Stewart, A. F. Babonau, R. Sweet.

Temporary Lieutenants to be temporary Captains: Homi Rustomji Cursetji, Sohan Lal Bhatia, Antonelli Saldanha, Govindrajapuram Rama Pattar Parasuram, Kyaw Nyan, Kizhanattan Seshadri Gopalaswami, Monmohun Kumar, Nagendra Narain Majumdar, Kali Krishna Sirker, Satya Kumar Ray, Madho Prasad Bhargava, Coimbatore Krishna Anantanarayana Iyer.

The King has approved the retirement of Lieut.-Col. G. P. T. Groube in consequence of ill-health.

Major J. A. Cruickshank officiates as Assistant Director-General of Medical Services in India vice Lieut.-Col. W. D. A. Stevenson, granted three months' leave. Major H. Halliday is appointed to be Civil Surgeon, Simla. Major A. Chalmers, Staff-Surgeon 4th (Quetta) Division, Quetta, is appointed to hold charge of the current duties of the office of Civil Surgeon, Quetta, in addition to his own duties. Major R. J. Owen, an officiating Agency Surgeon of the 2nd Class, is granted leave for six months. Major D. S. Ollenbach, retired Medical Officer, Eastern Bengal Railway, Sealdah, to act as Deputy Superintendent of the Campell Medical School and Hospital vice Major R. Sharples, allowed six months' leave. Major B. B. Sheen, Professor of Midwifery, Medical College, Calcutta, is appointed to act as Surgeon Superintendent of Presidency General Hospital, Calcutta vice Lieut.-Col. F. O'Kinealy, granted six months' leave. Lieut.-Col. W. H. E. Woodwright officiates as Inspector-General, Civil Hospital, United Provinces, vice Colonel C. Mactaggart, granted six months, leave. Dr. R. A. Hollingsworth is transferred from Toungoo and is posted to the charge of the Rangoon Central Jail as a temporary measure, in place of Major R. D. Saigol, Ophthalmic Surgeon, Rangoon General Hospital.

THE HONOURS LIST.

The following awards to medical officers are announced:—

O.B.E.—Surg.-Lt. Comdr. L. F. Cope, R.N., "For valuable services with the Danube Naval Brigade."

M.B.E.—Surg.-Sub.-Lt. D. J. T. Oswald, R.N.V.R., "For valuable services during the war."

Foreign Decorations.

Belgian.

Croix de Guerre.—Surg.-Lt. W. G. Bigger, D.S.C., R.N.

URBAN VITAL STATISTICS.

(Week ended Oct. 25th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had steadily increased from 10·4 to 12·5 in the six preceding weeks, further rose to 13·7 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 16·3, or 1·6 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 3·0 in Dudley, 5·6 in Rotherham, and 5·8 in Eastbourne, to 18·4 in Gateshead, 18·5 in Barnsley, and 20·5 in Hastings. The principal epidemic diseases caused 269 deaths, which corresponded to an annual rate of 0·8 per 1000, and comprised 115 from infantile diarrhœa, 68 from diphtheria, 34 from measles, 27 from scarlet fever, 21 from whooping-cough, and 4 from enteric fever. Measles caused a death-rate of 1·5 in Sunderland, 1·8 in Tynemouth, and 3·4 in South Shields, and diphtheria of 1·1 in Sunderland. There were 2246 cases of scarlet fever and 1355 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2120 and 1320 respectively at the end of the previous week. The causes of 35 deaths in the 96 towns were uncertified, of which 6 were registered in Birmingham, 6 in Liverpool, and 3 in Tynemouth. The deaths from influenza, which had been 32, 39, and 57 in the three preceding weeks, further rose to 71, and included 20 in London, and 4 each in Birmingham and Leeds.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 10·8, 10·2, and 12·3 in the three preceding weeks, fell to 11·1 per 1000. The 237 deaths in Glasgow corresponded to an annual rate of 11·0 per 1000, and included 7 from diphtheria, 5 from infantile diarrhœa, 3 from scarlet fever, and 1 from measles. The 93 deaths in Edinburgh were equal to a rate of 14·4 per 1000, and included 4 from scarlet fever, 3 from diphtheria, and 1 each from measles and whooping-cough.

Irish Towns.—The 118 deaths in Dublin corresponded to an annual rate of 15·2, or 0·4 per 1000 below that recorded in the previous week, and included 3 from infantile diarrhœa and 1 each from enteric fever, whooping-cough, and diphtheria. The 116 deaths in Belfast were equal to a rate of 15·1 per 1000, and included 12 from scarlet fever and 1 from infantile diarrhœa.

Correspondence.

"Audi alteram partem."

GENERAL MEDICAL COUNCIL ELECTIONS: THE ELECTION OF DIRECT REPRESENTATIVES FOR ENGLAND.

To the Editor of THE LANCET.

SIR,—Like Dr. John Brown of Blackpool, I also have been nominated as a candidate for election as a Direct Representative for England on the General Medical Council, my nominators being the National Medical Union, with the approval of other associations having a non-panel membership. I have, however, too high an opinion of the independence of the individual professional man to believe that any organisation can deprive him of his liberty of thought and action. I have myself for long been, am, and propose remaining, a member of the British Medical Association, though regretting some of its actions in the past in relation to State Medicine, and it would certainly never occur to me to do otherwise than scrutinise carefully, and in the matter of medical politics very carefully, any suggestion emanating from its directorate for the time being. I have no fear, therefore, that with all the advantages which Dr. Brown claims for its specially nominated candidates, the profession at large, or even its own membership, will unreflecting do its bidding. In a medical election heads are counted, not noses. I think, therefore, Dr. Brown and other candidates need not fear that their just claims will be overlooked merely because the rulers of any given organisation endeavour to influence the electorate in favour of certain nominees. I have too high a regard for the electorate now in question to believe that it will without careful consideration yield to any organised attempt to manipulate its intelligence.

I am, Sir, yours faithfully,

ALEXANDER BLACKHALL-MORISON, M.D., F.R.C.P.

London, Oct. 25th, 1919.

POST-MORTEM ACTIVITY OF THE LIVER AFTER DIABETIC COMA.

To the Editor of THE LANCET.

SIR,—About 20 years ago I was called out early in the morning by the relations of a patient who had died the previous night, about 10 o'clock, from diabetic coma. I arrived about 8.30 A.M. and found that the reason for summoning me was that the body was so warm that they could not believe that he was dead. The weather was very cold and the body had lain all night in an unheated room. I was able to convince them that the patient was really dead, though the upper abdomen and lower thorax were still quite warm to the touch.

The incident remained in my memory as a curious one, but I did not attach any particular import to it at the time. Not long ago, however, I was in the post-mortem room and noticed steam arising from the abdomen in a case of the same nature. On placing a thermometer in the substance of the liver the temperature was found to be 91° F. It was then 3 P.M., the temperature of the room was 40° F., and the body had been there certainly over 10 hours, the patient having died before 2 A.M. that morning. The warmth was confined to the liver and neighbouring viscera.

It is clear, of course, that nothing but prolonged physiological activity of the liver could account for the maintenance of such a temperature under such conditions, and it would be very interesting to know whether this activity is peculiar to diabetic coma. It may be presumed that the condition was the same in the first case as in the second, though not proved. I am not aware of any previous observations on the subject, and I therefore send this note in the hope of stimulating further inquiry. It is possible that an investigation of the chemical condition of the liver under these circumstances might throw some light on some of the vexed problems of diabetes. In any case the question of the post-mortem activity of organs, the delay of cellular death, and the conditions under which it occurs is one of considerable interest and importance. I am, Sir, yours faithfully,

Brighton, Oct. 23rd, 1919. E. HOBHOUSE, M.D.

CONJUGAL TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—It is difficult to follow Dr. C. Muthu's argument in his letter which you publish in your issue of Oct. 18th. We know that consumption is caused by tubercle bacilli, provided the dosage is sufficient, and we know that contact cases (especially husband and wife) are exposed to strong infection. Why, therefore, must one explain any slightly greater prevalence of the disease amongst married people than others by supposing that the stress and strain of married life are factors in rousing into activity some assumed latent lesion? What good evidence is there that re-infection does not occur, and that disease which manifests itself in later life is only the result of infection in childhood? Even if one holds this view one must admit the necessity of guarding against infection throughout life, for the child will remain susceptible until infected.

Again, Dr. Muthu suggests that most people who nurse consumptives do not contract the disease. But surely the same applies to scarlet fever. Such negative evidence can have very little value. Is it not equally reasonable to believe that we are all exposed to infection, but that the individual possesses some resistance which is usually sufficient to prevent the infection from developing into a serious disease? Repeated small infections may add to this resistance, but there is a limit, and if the dosage is too great the patient develops tuberculosis, whether or not he has been previously infected. For a long time I have held the strong opinion that the danger of contact has been much exaggerated, but I would never allow a consumptive patient to sleep with his wife, and I think it would be a bad day if medical opinion convinced the public that consumption is not a contagious disease.

I am, Sir, yours faithfully,

Wimbledon, S.W., Oct. 19th, 1919. L. S. BURRELL.

CŒLIAC DISEASE.

To the Editor of THE LANCET.

SIR,—The subject of cœliac disease is one so comparatively seldom raised that I hope Dr. David Forsyth's paper in THE LANCET of Oct. 25th may serve as a pretext for some discussion on this condition. Could an agreement be reached on some points in connexion with the disorder, even though mainly negative ones, it would be useful. Firstly, and before considering Dr. Forsyth's suggestion, there is the question of the morbid anatomy. While I do not forget such changes as have been reported post mortem, yet it seems true that no causative organic lesions are constantly found. Most commonly, as in a recent case of my own, no important lesions are found, even microscopically, in the pancreas and liver and their ducts, nor in the intestines. Secondly, if this be agreed to, the causative theories advanced must be viewed in this light. Must we not seek a cause which can operate over many years without being associated with any organic changes traceable (or as yet traced) post mortem?

Dr. Forsyth's suggestion of boric acid poisoning, however applicable to the acute case he reports, is difficult of acceptance in the true chronic cœliac case. Such points as the following occur to my mind. The withdrawal of milk does not cure, only improves, the condition. I have had good results in mild recrudescences by giving the usual milk well skimmed instead of with its cream. In one patient of mine, travelling all over England in the last three years, attacks have occurred anywhere, town or country. In recovering cases the stools will vary in colour and consistency enormously without change in diet. Finally, it is difficult to account for the continuance of the symptoms unless the boric acid set up a chronic enteritis, which neither the character of the stools nor post-mortem findings suggest.

The theory of abnormal intestinal flora is attractive, particularly in view of the abrupt onset of some cases. But in agreement with other observers, in my search for abnormal organisms I have found none or any. In one instance under me for the past five years an organism of the paratyphoid-Gaertner group was originally reported several times. This disappeared in a course of soured-milk treatment and has never reappeared, but no definite good seems to have accrued. Must we not, however unwillingly, set this theory aside as insufficient?

The relationship of cœliac disease to other diseases, especially to sprue, needs elucidation. We badly want information from those who have seen much sprue. From reading accounts of it, it appears more a kindred disease than the same disease under different circumstances. The relationship to scurvy I have not been able to trace. Pains in the legs are common, but even when present I have not been able to recognise a scorbutic element. Loss of knee-jerks is also frequent. Two of my cases had been suspected of poliomyelitis. We should not forget, in connexion with cœliac disease, the case of congenital steatorrhœa reported by Garrod,[1] of which I have seen an example.

Lastly, there is the theory of pancreatic or biliary insufficiency. It would seem that we can exclude a persistent organic disease of these glands and their ducts, and almost certainly a temporary but repeatedly reappearing organic disease upsetting their functions. On the other hand, we cannot exclude a disorder of their functions from some unknown cause. Of the two organs the liver seems much more suspect than the pancreas.

If it be agreed that our knowledge of the cause of the disorder is in this nebulous state, its title and definition should reflect our ignorance. The term cœliac disease is pleasingly vague, and is to be preferred to others sometimes used, such as "acholia" or "pancreatic insufficiency." Its definition must be in clinical terms and carefully non-committal—e.g., "a condition of obscure origin occurring in children, and characterised by a chronic or relapsing fatty diarrhœa, enlargement of the abdomen, and retardation of physical growth.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 27th, 1919. REGINALD MILLER.

THE GENESIS OF CANCER OF THE UTERUS.

To the Editor of THE LANCET.

SIR,—I have read with interest in your issue of Oct. 25th the summary of Dr. F. J. McCann's communication to the Royal Society of Medicine on the pre-cancerous uterus and your sympathetic leading article on this subject, which is by no means a new or unimportant one. In the first (1910) and in the succeeding editions (1917 and 1919) of my "Principles of Gynæcology" I called attention to the matter in the following words under the heading of treatment of carcinoma of the cervix:—

"In discussing the treatment of most diseases it is advisable, when possible, to pay some attention to *prophylaxis*. Now, it is well known that primary carcinoma of the cervix is practically confined to women who have borne children. This is a fact of the greatest moment, for few women escape laceration and subsequent cervicitis as a consequence of their contributions to the perpetuation of the species. Herein lies the most powerful predisposing factor to subsequent carcinoma. This has only to be realised to cause the practitioner to leave no cervix unrepaired or case of cervicitis untreated."

As a matter of fact, I always deal with these lesions in patients approaching middle life by amputation of the part affected.

In connexion with the subject under discussion an interesting and much-debated point of gynæcological technique arises. Certain surgeons advocate and practise panhysterectomy—that is, removal of the cervix with the body of the uterus—in *every* case in which hysterectomy is performed for fibromyomata uteri. I do not think that such a generalisation is founded on clear reasoning. We know that a majority of fibromyomatous uteri is removed from nulliparous women in whom the cervices are neither lacerated nor infected. In these circumstances supravaginal hysterectomy should be practised, other conditions being equal, since no one who is not a partisan can deny that supravaginal hysterectomy is much less serious an operation than panhysterectomy. If, however, the patient has had children and there are lesions in the cervix, it is always my practice[2] to perform panhysterectomy. For the same reason it is usually necessary to subject the patient to complete hysterectomy when we operate for chronic subinvolution and chronic infection of the body of the uterus.

I am, Sir, yours faithfully,

Liverpool, Oct. 26th, 1919. W. BLAIR BELL.

[1] A. E. Garrod and W. H. Hurtley, Quart. Journ. Med., vi., 242.
[2] The Principles of Gynæcology, 1919, p. 539, et seq.

NURSE ANÆSTHETISTS.

To the Editor of THE LANCET.

SIR,—I have followed the discussion in THE LANCET upon this subject with particular interest, for it so happens that in May last I was asked to deliver an address upon the proposal to a conference of nurses which was then being held. I am therefore pleased to find how completely in accord I am with the views put forward by Dr. Dudley Buxton and other well-known authorities in opposition to what I then called "this amazing proposition." Some figures which I then used may be of interest to your readers. It has been argued by some that nurses might well be employed as anæsthetists "in simple cases." Who is to define what is a simple case from an anæsthetist's point of view? Of 133 deaths which had recently come under my notice no less than 43 were what might well be described as "simple." At any rate, I think that the term would be applied to small sinus operations (19), examinations (9), opening abscesses (7), lumbar puncture (3), tonsils (2), amputation of finger, circumcision, and extraction of teeth (1 each). Then, again, very nearly 50 per cent. of the fatalities occurred during the stage of induction—i.e., at precisely the time when the surgeon would be least likely to be present to advise and assist (? cover).

That the plan has been tried with a certain amount of success under stress of war and other emergencies, is no more an argument in its favour than could be applied to anyone who renders "first aid" and stops a bleeding vessel, and might therefore on similar grounds be entitled to practise medicine. But if nurses are to be permitted to act as anæsthetists, why not hospital porters and orderlies? Shortly before the war a medical man was struck off the Register for administering nitrous oxide for a well-known "bone-setter." How is the General Medical Council to draw a distinction between the two classes of infringement of the Medical Acts? But I believe that the two most serious arguments against the proposition are: (1) the uncertain status of the nursing profession (as the matter now stands one's housemaid of to-day might well act as a nurse (and anæsthetist) to-morrow); (2) the almost universal feeling that the welfare of the patients would in the long run suffer from the arrangement.

I am, Sir, yours faithfully,

Nottingham-place, W., Oct. 22nd, 1919. J. FREDK. W. SILK.

IRISH PUBLIC HEALTH COUNCIL.

To the Editor of THE LANCET.

SIR,—The presidential address of Dr. E. Coey Bigger, Medical Commissioner of the Irish Local Government Board, delivered at the first meeting, on Oct. 2nd, of the Irish Public Health Council, is certainly of great interest to the members of the Irish medical profession in two ways—first, for what was expressed in it, and secondly, for what was not stated. First, Dr. Bigger said the Public Health Council as constituted was merely a temporary body formed to advise the Chief Secretary for Ireland (as Minister of Health) as to the steps to be taken for the improvement of the public health, and

"for this purpose he has been careful to select as its members the representatives of the different existing authorities charged with public health functions throughout the country, and it is now his aim to formulate with the advice and assistance of those members a comprehensive scheme of public health to be incorporated in a Bill to be submitted to Parliament. He [i.e., the Chief Secretary] desires it to be understood that, generally speaking, the functions of the council will be to prepare a legislative programme, and the Minister hopes that the work of preparing material for the Bill will be undertaken with all possible expedition."

Dr. Bigger then proceeded to point out to his Council the problems before them, or, in other words, to describe the present state of public health in Ireland, as follows:—

(*a*) "It must be confessed," he said, "that everything possible has not been done to prevent and treat disease in this country" [i.e., Ireland].

(*b*) While he is satisfied with the hospitals in "our cities," he thinks an extension of the system of pay patients would help immensely the class of people who are better off than the working-classes, who do not care to seek free treatment as a charity, and who cannot afford specialists and private hospitals. Dr. Bigger did not say anything about the position of the surgeons in such a scheme, but probably he relies on the inexhaustible pocket of the British income-tax payers!

(*c*) The same hospital conditions do not, he remarks, hold in the smaller towns and in the country. What, then, one replies, is the use of Irish union infirmaries and county hospitals?

(*d*) "Neither in the rural districts nor smaller towns are those who are in the most need of the highest medical or surgical skill or prolonged institutional treatment, radium, X ray, &c., cared for as their condition demands." Is a "Mayo Clinic" to be set up in every village and town in Ireland, and are there no motor-cars (Ireland is full of "Fords") to bring patients needing specialised medical treatment to large centres?

(*e*) County councils in Ireland are not sanitary authorities within the meaning of the Public Health Acts, and they have not yet in Ireland the power to appoint county medical officers of health.

(*f*) More nurses are needed. Dr. Bigger says "at present the only nurses available are those of such voluntary societies as the Queen Victoria Jubilee Nurses Association and the Lady Dudley Nursing Association." Those who know that there are nursing societies in Ireland apart from these two excellent associations Dr. Bigger names will rub their eyes in astonishment at such an incorrect statement.

(*g*) Dental surgeons are urgently required.

(*h*) Antituberculosis measures "require consideration and enlargement."

(*i*) "Facilities for laboratory diagnosis of disease are totally inadequate."

(*j*) The milk-supply is far from satisfactory.

(*k*) Medical school inspection has not yet come into force.

(*l*) Improvements in the housing conditions are needed.

(*m*) The Council is to deal with the initiation and direction of research as applicable to all questions of health.

(*n*) "The field of preventive medicine in Ireland is as yet almost unexplored."

Who, Sir, is responsible for this truly awful state of the public health of Ireland, as pointed out by the chairman of the new Irish Public Health Council, who is also Medical Commissioner of the Irish Local Government Board? Clearly the fault lies with "the representatives of the different existing authorities charged with public health functions throughout the country," whom, Dr. Bigger says, the Chief Secretary "has been careful to select" as members of the Irish Public Health Council. These are the people who, with a few additional Crown-nominated members not in touch with the public health wants of the whole of Ireland, are selected to prepare a public health "legislative programme." Was there ever a better example of a public health Gilbert and Sullivan comedy? Nowhere but in Ireland would such folly be tolerated.

Dr. Bigger, in his address, never referred to any advisory medical committee being formed—as has been done in England and Scotland—to guide his Council as to what is really wanted in public health matters in Ireland. Does he, or do his Council, imagine that the medical profession in Ireland are to be asked to carry out a new public health scheme, suggested by a body on which they have no members elected by themselves and which they cannot regard as in any way representative of the whole country, or indeed as acquainted practically with the wants—from a public health point of view—of Ireland. How could a Public Health Council, all the members of which lived either in Cork, Limerick, Galway, Belfast, or Derry, and whom the medical profession as a body were not given an opportunity to elect, be said to be representative of the profession as a whole? Yet, of this non-democratically selected Irish Public Health Council just set up, *every* medical member lives in Dublin, and the medical profession, who will be expected to work for the whole of Ireland any measure of public health it may, perchance, evolve, were as a body never permitted to elect their own representatives on it. To suggest such an elaborate scheme for a country in which "the field of preventive medicine is as yet almost unexplored," is, from a practical point of view, either camouflage or a joke.

I am, Sir, yours faithfully,

Oct. 25th, 1919. IRISH PRACTITIONER.

THE BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES.

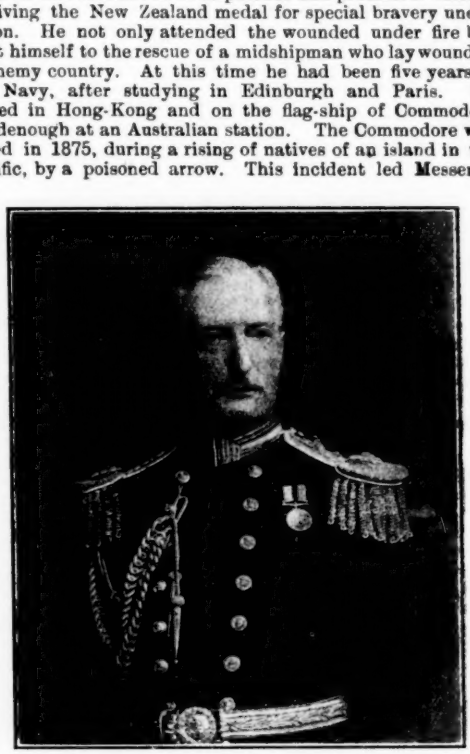
WE have received a further communication from Dr. C. O. Hawthorne in which he considers that the letter from Sir Henry Morris to Dr. Charles Buttar, published in THE LANCET last week, confirms his (Dr. Hawthorne's) statements on the main facts of the controversy. More space cannot be found for the discussion of the alleged crimes which attended the birth of the Federation. We have attempted to give to both sides equal opportunities for placing the issues before our readers.—ED. L.

Obituary.

ADAM BRUNTON MESSER, M.D. EDIN.,

INSPECTOR-GENERAL OF HOSPITALS AND FLEETS; HONORARY PHYSICIAN TO THE KING.

THE death of Inspector-General Messer at an advanced age removes a naval surgeon whose reputation for personal gallantry, as well as for professional skill, dates from 1864, when he was mentioned in dispatches and promoted, besides receiving the New Zealand medal for special bravery under action. He not only attended the wounded under fire but went himself to the rescue of a midshipman who lay wounded in enemy country. At this time he had been five years in the Navy, after studying in Edinburgh and Paris. He served in Hong-Kong and on the flag-ship of Commodore Goodenough at an Australian station. The Commodore was killed in 1875, during a rising of natives of an island in the Pacific, by a poisoned arrow. This incident led Messer to



INSPECTOR-GENERAL MESSER.

make a study of this subject, and he published a pamphlet entitled "An Exhaustive Inquiry into the Nature of Poisoned Arrows," which attracted the attention of the then Medical Director-General and the Admiralty, and for which he received special commendation.

In 1877 Fleet-Surgeon Messer was appointed to the *Temeraire*, and the year after was sent to Plymouth Hospital. From this time, except for a brief period on the *Northampton*, he remained on land, and was in charge of Malta Hospital when promoted to Inspector-General in 1892. His mental make-up included an admirable orderliness, which served him well in his official work. He retired in 1896, and in 1899 was appointed an honorary physician to Queen Victoria, which position he held throughout the reign of Edward VII. and into that of King George. His time no longer being constantly claimed by medical and official duties, he was able to develop his powers as an artist, which had only lacked time and opportunity to become first-rate. A brilliant and many-sided personality, he has left his mark on the service to which he devoted his life.

Dr. Andrew Boyd Fulton, of Cheetham Hill, Manchester, who died on Oct. 8th, qualified with commendation at Glasgow University in 1884, and went to Manchester 21 years ago. He had a large private practice, and was also surgeon to the Bethesda Cripple Home and Orphan Homes, Cheetham Hill. He was a native of Milton of Campsie, Stirlingshire, having been born 57 years ago. He married in 1890 Bessie, the youngest daughter of the late Mr. John Barr, of Campsie, leaving four daughters and one son. He was a man of great professional ability and strong personality, and bravely continued his professional activities in spite of suffering, for three years ago he underwent an operation at Edinburgh for tumour of the spine.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Final Examination of the Conjoint Board, held from Oct. 7th to 21st, the following candidates were approved in the undermentioned subjects, but are not eligible for diplomas:—

Medicine.—W. Bowler, Liverpool; H. C. Brayshaw, Edinburgh Univ.; J. P. Brown, Liverpool; W. M. Brown, Guy's; G. L. Clements Birmingham; A. C. M. Coxon, Cambridge and Guy's; A. N. M. Davidson, King's Coll.; P. M. Desai, Grant Medical Coll.; C. W Empey, London; F. S. Hunter, Birmingham, Guy's, and Bristol; F. James, Charing Cross; P. T. McIlroy, Kingston; M. Mahfooz, St. Thomas's; S. F. Mahmood, St. Bart.'s; T. I. Mahar, Westminster; F. A. O'Reilly, Kingston; S. T. Parker, Otago; F. F. Petersen and N. A. M. Petersen, London; G. K. Reeves, Guy's; F. P. Schofield and C. Shaw, St. Bart.'s; C. J. Slim and A. Sutki, Birmingham; A. E. Sutton, Toronto and St. Bart.'s; N. V. Wadsworth, Guy's; C. J. L. Wells, St. Bart.'s; May Grant Williams, Royal Free; Grace Elizabeth Winn, Royal Free and St. Mary's; and D. W. Winnicott, Cambridge and St. Bart.'s.

Midwifery.—G. K. Arthur, St. Bart.'s; W. R. Bennette, Liverpool; A. B. Bratton, Cambridge and London; H. C. Brayshaw, Edinburgh; H. W. Briggs, Cambridge and St. Thomas's; K. E. Bury, St. Thomas's; S. Cohen, Guy's; Sarah Annie Cooper, Charing Cross; G W. Dando, Birmingham; S. N. Deboo, Bombay; T. A. Eccles, St. Bart.'s; J. H. France, Westminster; A. C. V. Gosset, Cambridge and St. Thomas's; E. E. D. Gray, Guy's; L. W. Heffernan and F. Hiam, Middlesex; T. B. Hodgson, St. Bart.'s; G. F W. Howorth, Middlesex; W. E Huddleston, Texas; D. Hunter, London; F. V. Jacques, Bristol; F. J. Jauch, Middlesex; Doris Eleanor Parker Jolly, King's College; E. F. J. Jones, St. Mary's; F. C. Jones, Manchester; W. E. Jones, Toronto; J. S. Lewis, St. Mary's; C. H. Macklin, Middlesex; Ida Caroline Mann, Royal Free and St. Mary's; L. B Maxwell, Cambridge and St. Thomas's; D. G. F. Moore, St. Bart.'s; A. W. Mooro, Cairo and St. Bart.'s; E. O. Morrison, Cambridge and St. Mary's; J. A. Morton, St. Bart.'s; F. A O'Reilly, Kingston; W. A. Owen, London; H. A. A. Pargeter, Guy's; S. T. Parker, Otago; G. J. Preston, Kingston; R. F. Price, McGill; T. Reed, Guy's; Harriet Rowland Louise Reid, Manchester; H. L. Sackett and G. M. J. slot, St. Bart.'s; S. S. H. Sofi, London; S. D. Sturton, Cambridge and St. Bart.'s; A. E. Sutton, Toronto and St. Bart.'s; E. M. Townsend, Middlesex; A. Weinger, King's Coll.; and A. D Whitelaw, St. Thomas's.

Surgery.—O. H. Brown and G. F. Burnell, Charing Cross; Alison Margaret Collie, St. Mary's; G. W. Dando, Birmingham; C. O. Davies, Liverpool; K. H. Doonas, St. Bart's; R. H. Emmett, Cambridge and St. George's; E. A. H. Grylls, Cambridge and London; C A. Hutchinson and F. F. Langridge, London; G P. Lindsay, Guy's; W. F. Matthews, King's Coll.; T. S. Nelson, Oxford and St. George's; and H. A. Pargeter, Guy's.

UNIVERSITY OF DURHAM: FACULTY OF MEDICINE.—At a special Second Examination for the degree of Bachelor of Medicine the following candidates were successful:—

Anatomy and Physiology.—John Caine Boyde, Robert Archibald Brown, David Davies, Edward Spencer Kirkhouse, George Alexander Mason, Hugh Leslie Mather, Phyllis Mary Walker, and Ella Lees Young.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates have passed the Triple Qualification Examinations:—

THIRD EXAMINATION.

Francis Xavier Hayes, Arthur Renwick Lamble, Herbert Brown, William Wolfe Glucksman, Ronald Gillan Clouston, Muriel Keyes, Helen Worthington, John Pringle Crichton, and Joseph Black.

Materia Medica.—Aan Wilson Hart, Ian Fleming McAsh, Adriaan Vincent Bergh, William Bethune Stott, Richard Francis Kerr, Leonard Edward Murray, Frank Walwyn, and Catherine Millar.

FINAL EXAMINATION.

John Bruce Watson Telford, Henry Jennings, Michel Sidawi, Thomas Ferguson Minford, Thomas Robertson Sinclair, Iain Ross Macphail, John Alfred Alexander Duncan, George Coote Field, John Thomas Dier, John Richard Larson, Lewis Ritkind, Mandayam Anandampillay Parthasarathy Iyengar, William Gibson Wilson, Gordon Beveridge Norman Joseph Patterson, Gilbert Llewellyn Stanley, Alan Herbert Brooke Hudson, and Daniel Augustine Dias.

Medicine.—Walter Frederick Swanton Webb, William McMullan, Frederick William Thompson, John Francis Edward Burns, Alexander Forsyth Caddell, Thomas Hardie, Patabendi Martin Fernando, and Edward Spence.

Surgery.—Walter Frederick Swanton Webb and Frederick William Thompson.

Midwifery.—Walter Frederick Swanton Webb, Mayberry Hugh Carleton, John Francis Edward Burns, Thomas Wyper Stewart, and John Stevenson.

Medical Jurisprudence.—William Frederick George Radford, Jessie Hayna Crawford, Janet Adeline Agnes Sang, Evert Frederick Birkenstock, Peter Fraser Fairley, Percival Charles Holden Homer, John Murray, Thomas Wyper Stewart, and Herbert Brown.

DIPLOMA IN PUBLIC HEALTH.

Crichton Raoul Merrilees, Charles Morton Gavin Elliott, Peter Morrison Tolmie, Martha Luella Hamilton, Robert John Maule Horne, Robert Noel McKinstry, Thomas Blackadder Gilchrist, James John Galbraith, John Edwin Allan, Robert Cecil Robertson, William Ashley Lethem, and Annie Mackenzie Madin.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At the recent Dental Examinations the following candidates passed:—

FIRST DENTAL EXAMINATION.

Gerrit Johannes Lamprecht, Ernest Joseph Millhouse, Bene Rippen, Harry John Henderson, George Walter Casson, and Wilhelmine Jessie Borrie Duncan.

Chemistry and Physics.—Gilbert Alphonso Loots, Jacobus Myburgh Moll, Rudolph Montague Tren, Oswald Farnington Lowe, Thomas Alexander Eckford, Harvey Goodwin Mackintosh, and Meyers Fouche.

FINAL EXAMINATION.

Ralph Lawson Keith Common, Edgar Gordon Adams, Herbert Daniel Howard, Alexander Miller, and Bene Rippen.

ROYAL INSTITUTION OF GREAT BRITAIN.—A general meeting of the members will be held at Albemarle-street, Piccadilly, W., on Monday next, Nov. 3rd, at 5 P.M.

THE Right Hon. T. J. Macnamara will deliver the introductory address at the postponed opening of the King's College Hospital Medical School. The ceremony will take place to-day, Friday, Oct. 31st, at 3 P.M., under the presidency of Viscount Hambleden. Academic dress will be worn.

THE annual dinner of past and present students of the Charing Cross Hospital, which was postponed from Oct. 1st, will take place at the Adelaide Gallery, Gatti's Restaurant, on Wednesday, Nov. 19th, at 7 for 7.30, Colonel William Hunter, C.B., M.D., presiding.

UNIVERSITY OF LONDON: ADVANCED LECTURES IN PHYSIOLOGY.—The course of advanced lectures on "The Energy Balance of the Human Body" and "Electrical Signs of Emotive Phenomena," by Professor A. D. Waller, will be delivered at 5 P.M. on Nov. 5th, 12th, 19th, 26th, and Dec. 3rd, in the Physiological Laboratory of the University, South Kensington, instead of as previously advertised. These six lectures, of which the first was delivered on Oct. 29th, are addressed to advanced students of the University and to others interested in the subject, and admission is free.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—At the annual meeting of the President and Fellows of the Royal College of Physicians of Ireland held on Oct. 18th the following were elected:—President: Dr. James Craig. Vice-President: Dr. S. T. Gordon. Censors: Dr. S. T. Gordon, Dr. Alfred R. Parsons, Dr. William Boxwell, and Dr. J. Spencer Sheil. Representative of the College on the General Medical Council: Sir J. W. Moore. Treasurer: Dr. H. T. Bewley. Registrar: Dr. T. Percy C. Kirkpatrick. At the same meeting Dr. Richard E. Tottenham was elected a Fellow.

ROYAL SANITARY INSTITUTE.—On Friday, Nov. 14th, at 7 P.M., in the Town Hall, Bootle, a discussion will take place on Reconstruction of the Public Health Services, to be opened by Dr. E. W. Hope, medical officer of health, Liverpool. On Saturday, the 15th, visits will be arranged to the school clinics and maternity and child welfare centre (including the remedial exercises and electrical department), to the premises of Messrs. Johnson Bros., Bootle Dye Works, and of Messrs. J. A. Hunter and Co., Ltd., ham and bacon curers. Lunch will be arranged at the Windham Hotel, at a charge of 3*s.* 6*d.* each.

BRENTFORD UNION INFIRMARY.—At their last meeting the guardians of the Brentford Union adopted recommendations from the infirmary committee providing for a children's and maternity block, the setting up of an X ray department, the appointment of visiting specialists, and such an increase in the nursing staff as will permit of the introduction of a 48-hour week for nurses. The specialists to be appointed at once will include a physician, a surgeon, a gynæcologist, and a radiographer; other appointments will be made hereafter. It is intended that regular weekly visits shall be paid by the medical staff, so that all new admissions may be seen, and the guardians have agreed to meet the travelling expenses of the staff at the rate of a guinea a visit.

ROYAL DENTAL HOSPITAL OF LONDON.—The annual dinner of the staff and past and present students and their friends will be held on Saturday, Nov. 22nd, at the Freemason's Tavern (Connaught Rooms) at 6.30 P.M., with Sir Harry Baldwin in the chair, tickets 10*s.* 6*d.* each, exclusive of wine. As this is the first reunion since the war began it is hoped there will be a large attendance, but it is earnestly requested that those who intend to be present will send in their names at their earliest convenience, stating also if it be their intention to bring friends. Communications should be addressed to Mr. W. H. Dolamore, dean of the school.

Mrs. Lloyd George has consented provisionally to unveil the Roll of Honour and to distribute the prizes at the school on Wednesday, Nov. 5th, at 5 P.M.

PLAGUE IN THE PORT OF LONDON.—When the s.s. *Nagoya* arrived in the Port of London on Saturday last the assistant medical officer of the port found that six cases had occurred in the native crew which he regarded as cases of plague. The first man attacked was taken ill on Oct. 21st, died on Oct. 23rd, and was buried at sea. The second case fell ill on Oct. 22nd and was removed on Oct. 25th in a moribund condition to the Isolation Hospital of the Port of London Sanitary Authority. Six other cases have been landed and taken to this hospital. The diagnosis of plague has since been confirmed by the bacteriologist of the Ministry of Health from material obtained from the second case. The vessel is being disinfected by the Port Sanitary Authority, and all necessary precautions have been taken.

THE FOOD EDUCATION SOCIETY.—This society, known until lately as the National Food Reform Association, has issued a report, covering the period 1914–1918, which shows a record of good work in helping to conserve the food-supply during the war. That much food is wasted both by unsuitable selection and wasteful methods of preparation has been the burden of many practical lectures and demonstrations. The society has cooperated in certain directions with the National League for Health, Maternity, and Child Welfare, and has been active in approaching Members and candidates for Parliament in relation to food and the health of the people. The chairman of the society is Dr. H. Beckett-Overy, the vice-chairman Dr. Harry Campbell, and the report can be obtained from the offices of the society, Danes Inn House, Strand, London, W.C. 2, price 1*s.* 1*d.* post free.

ROYAL SOCIETY.—A joint meeting of the Royal Society and the Royal Astronomical Society will be held on Thursday, Nov. 6th, at 4.30 P.M. The meeting of the Royal Society on that day has been set aside by the council as a "meeting for discussion," the subject being the Results of the Observations Obtained at the Total Solar Eclipse on May 29th, 1919. The discussion will be opened by Sir Frank Dyson (Astronomer Royal). Professor Eddington and other members of the eclipse expedition will take part. In accordance with the arrangements agreed to in February, 1899, the meeting will be a joint meeting of the Royal and the Royal Astronomical Societies, at which the observers will give the first and preliminary accounts of their observations.

THE RED CROSS IN NORFOLK.—At a recent meeting held in Norwich Sir Arthur Stanley, in his capacity of chairman of the central joint committee of the Norfolk branch of the Red Cross societies, commented on the large number of V.A.D.'s now unemployed, and repeated some of the schemes for their future work recently outlined by him in London. He referred to the proposal (THE LANCET, Oct. 25th, p. 738) to utilise their services in the battle against tuberculosis, after giving them the appropriate preliminary training. A League of Red Cross societies, comparable to the League of Nations, had been formed, and through its agency it was hoped that epidemics, such as that of typhus now raging in the Balkans, might be checked.

The members of the Norfolk branch of the fused society number 3182. Since the termination of the war, during which over 40,000 sick and wounded were carried by Red Cross transport, 11 ambulance cars have been stationed at various centres in the county for the use of discharged and disabled soldiers and sailors, and to meet the needs of the civilian population in cases of urgent sickness or accident. A further extension of this method of transport would be a great boon to the population in country districts.

THE MEDICO-LEGAL SOCIETY.—The annual dinner of the Medico-Legal Society was held at the Holborn Restaurant, Kingsway, on Wednesday last, the President, Dr. R. Henslowe Wellington, barrister-at-law, presiding over a good attendance. Sir William Collins, speaking to the toast of "Medicine and the Law," drew an interesting parallel between the scientific and social positions of the two professions, pointing out that, whereas it was a maxim of the law to take no care for trifles, it had become, since the era of bacteriology, the religion of medicine that in trifles there might lie first causes and the broadest results. The toast was responded to by Mr. Samuel Osborn, the Master of the Apothecaries Society of London, and Master R. T. Watkin-Williams, Master of the Supreme Court in Chancery. The toast of "The Medico-Legal Society" was given by Mr. J. A. Foote, K.C., Recorder of Exeter, who in a humorous exposition of the value in actual litigation of mutual understanding between medicine and the law, resented the phraseology which often had to be employed by the expert medical witness. He gave as an example the fact that he had before him at the moment the proof of some evidence to be tendered by an expert medical witness which was so spattered over with the word "ecchymosis" that he could only describe the whole document as being ecchymosed. Dr. Henslowe Wellington, in reply, expressed the hope that during his term of office as President a Parliamentary Committee of the society would be formed for the consideration of the medico-legal side of any proposed legislation. He added that he had thought that the society would form the foundation of, and eventually develop into, a school of forensic medicine, but he feared that this would not be realised because, among other things, the legal side of medical studies did not promise much pecuniary reward, while jurisprudence was not a compulsory subject in the educational curriculum of the student.

THE LONDON JEWISH HOSPITAL.—Lord Rothschild, who was accompanied by the Chief Rabbi, opened the London Jewish Hospital at Stepney Green last week. This hospital has been founded almost entirely by the Jewish poor, who have contributed small weekly donations since 1907. The site was acquired in 1909 for £5400 and building commenced in 1914, but was interrupted by the war. The front part of the hospital is now being proceeded with, and there will be accommodation for 60 beds. Mr. J. D. Kiley, M.P. for Whitechapel, said that although the institution would be known as the Jewish Hospital the qualification for admission would be need, without distinction of race or class.

MEDICAL SICKNESS SOCIETY.—The usual monthly meeting of the executive committee of this society was held on Oct. 17th, when the secretary reported a gratifying increase in new business as the result of increased publicity amongst the profession, and the greater necessity of cover during incapacity of any kind owing to the high charges for locums. The figures showed that whereas £3 3*s.* to £4 4*s.* a week was the usual fee 10 years ago, such a sum as £8 8*s.* and £10 10*s.* a week was quite common at the present time, and although every other charge had gone up, the society's rates of premium were the same now as in 1884. The results of the new Table for Sickness and Accident for Women Practitioners had been satisfactory and proposals are still coming in under this heading. The sickness claims continued to be under the expectation, but there has been a slight increase in the number of influenza cases during the last few weeks.

A number of claims were dealt with in which there had been omission to give notice in time according to the rules, and members are reminded of the necessity of giving reasonable notice of an illness or accident which is likely to incapacitate them, in order that the required evidence can be furnished.

A new form of proposal and medical examination was approved after careful consideration, and as the rules require all examinations of proposers to be made by appointed medical examiners, a list of names for appointment was ordered to be drawn up for submission to the next meeting. Prospectus and all particulars can be obtained from Mr. Bertram Sutton, F.C.I.I., Secretary, 300, High Holborn, W.C. 1.

Parliamentary Intelligence.

HOUSE OF COMMONS.

MONDAY, OCT. 27TH.

Pension Appeals.

Mr. TREVELYAN THOMSON asked the Pensions Minister if he could expedite the establishment of the appeal tribunals for hearing the claims of the widows and dependents of deceased soldiers, as provided by the War Pensions (Administrative Provisions) Act, 1919; and was he aware that the delay in hearing these appeals was causing much preventable loss and suffering; and could he say how soon these tribunals would be established.—Sir JAMES CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied: The provisions of the War Pensions (Administrative Provisions) Act, 1919, only came into operation so far as the establishment of the tribunals is concerned on Nov. 1st. The procedure to be adopted for bringing cases before the new tribunals has necessitated careful consideration. It is hoped to issue full instructions to local committees during the present week.

Rats and Mice Bill.

In moving the second reading of the Rats and Mice (Destruction) Bill Sir A. GRIFFITH-BOSCAWEN (Parliamentary Secretary to the Board of Agriculture) said that 12 years ago it was estimated that foodstuffs to the value of £15,000,000 per annum were destroyed by rats in this country. During the war rats had enormously increased, and last year the food they destroyed amounted to £40,000,000, which was nearly as much as the bread subsidy

paid by the State. These vermin were dangerous to property and to health. Rats had caused fires by nibbling matches and had blocked drains. The Bill laid it down that it was the duty of every man to destroy vermin on his own premises, and if he failed to do so he was liable to a fine not exceeding £20. The duty of enforcing the Act was laid on the local authorities. As ships were a fruitful source of introducing vermin the skipper was made liable to penalties if he did not take adequate measures for preventing the escape of rats from his ship to the land.

The Bill was read a second time.

TUESDAY, OCT. 28TH.

British Military Hospitals at Marseilles.

Colonel LAMBERT WARD asked the Secretary for War whether British military hospitals were still established at Marseilles; and, if so, would he state the number and approximate size of these units.—Mr. FORSTER (Financial Secretary to the War Office) replied: The latest information available in the War Office is dated Oct. 16th. On that date there were at Marseilles one British General Hospital equipped with 750 beds and one Indian General Hospital equipped with 400 beds.

Victory Medal for Territorial Nurses.

Sir WILLIAM SEAGER asked the Secretary for War if he was aware that dissatisfaction existed among the members of the Territorial Force Nursing Service, engaged in our Home military hospitals, by reason of the fact that they were not to receive the war medal or victory medal the same as those who went overseas; that many of these devoted women volunteered for overseas service but were commanded to remain on duty in this country, where they received the wounded from overseas and rendered most efficient and invaluable service in nursing our soldiers and sailors back to health; would he consider their claims for recognition: and did he propose to take any action in the matter.—Mr. FORSTER replied: As I have already stated, the question of a medal to those who rendered services in connexion with the Army at home during the war is receiving careful consideration.

Rats and Mice Bill.

The Rats and Mice (Destruction) Bill passed through Committee and was reported to the House.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

COWAN, B. A., L.R.C.P. & S. Irel., L.M. Rot. Dub., has been appointed Assistant Medical Officer to Bagthorpe Infirmary, Nottingham.

HEWER, C. L., M.R.C.S., L.R.C.P., Assistant Administrator of Anæsthetics to St. Bartholomew's Hospital.

STEEN, R. H., M.D., M.R.C.P. Lond., Out-patient Physician for Psychological Medicine, King's College Hospital, Denmark Hill.

Royal Free Hospital: BLACKWELL, U. P., L.R.C.P., M.R.C.S., Casualty Officer; GOWERS, Miss, M.R.C.S., L.R.C.P., Clinical Assistant Medical Out-patients; MATLAND, A. M., L.R.C.P., M.R.C.S., Clinical Assistant Throat, Nose, and Ear Department; MORRIS, C. W., M.B., B.S., Honorary Anæsthetist; PINKERTON, J. McL., M.B., Ch.B. Glasg., Surgical Registrar; WILLIAMS, LL., M.R.C.S., L.R.C.P., Junior Obstetric Assistant.

St. Mary's Hospital, Paddington; LEES, K. A., M.B., B.C. Cantab., F.R.C.S. Eng., Assistant Surgeon for Diseases of the Ear, Nose, and Throat; MATTHEW, A. W., M.R.C.S., L.R.C.P., and NEWMARCH, H. J., M.B., B.C., M.R.C.P., Honorary Anæsthetists.

Certifying Surgeons under the Factory and Workshop Acts: WALKER, L. C., M.R.C.S., L.R.C.P. Lond. (Malton); MACWATTERS, J. C., M.R.C.S., L.R.C.P. Lond. (Almondsbury).

Vacancies.

For further information refer to the advertisement columns.

Bath, Royal United Hospital.—H.S. £150.
Birmingham and Midland Ear and Throat Hospital.—H.S. £400.
Brighton, Hove, and Preston Dispensary.—Res. M.O. £200.
Brighton, Royal Sussex County Hospital.—S. and Asst. S.
Burnley, Victoria Hospital.—H.S. £250.
Canterbury, Kent and Canterbury Hospital.—Two Res. M.O.'s. £200 and £150 respectively.
Cardiff, Glamorgan County Council.—County M.O. £1000.
Cardiff, King Edward VII. Hospital.—Hon. Asst. S.
Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £300.
Central London Ophthalmic Hospital, Judd-street, W.C.—Hon. P. Asst. S.
City of London Hospital for Diseases of the Chest, Victoria Park, E.—P. Also Half-time M.O. £200.
Colchester, Essex County Hospital.—H.S. £200.
Croydon Mental Hospital, Upper Warlingham, Surrey.—Sec. Asst. M.O. £500.
Doncaster Infirmary.—H.S. £250 to £350.
Dorset Mental Hospital, Herrison, near Dorchester.—Sec. Asst. M.O. £340.
Dumfries, Crichton Royal.—Asst. P. £350.
Eastbourne County Borough.—Female Asst. M.O. £450.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—Two Asst. P.'s, Two Asst. S.'s, Oph. S., and Throat and Ear S.
East Riding Education Authority.—School Dent. £400.
Ebbw Vale Urban District Council.—M.O.H. and Sch. M.O. £750.
Great Northern Central Hospital, Holloway, N.—Two Clin. Assistants.
Hackney Union Infirmary, High-street, Homerton, E.—Sen. Asst. M.O. £324 10s.
Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—S. to Out-patients.
Hospital for Sick Children, Great Ormond-street, W.C.—Cas. M.O. £200. Also Two Anæs. £15 15s.
Infirmary of the City of London Union, 42, Clifden-road, Clapton, E.—Asst. M.O. £250.
Leeds General Infirmary.—Res. M.O. £200.
London Fever Hospital, Islington, N.—Asst. Res. M.O.
London Society for Promoting Christianity amongst the Jews, 16, Lincoln's Inn fields, W.C.—Missionary for Palestine. £350.
Manchester, Ancoats Hospital.—Two Asst. M.O.'s. £50.
Manchester Children's Hospital, Pendlebury.—Anæsth. £1 1s. per visit.
Manchester Hospital for Consumption and Diseases of the Throat and Chest.—Hon. Asst. P.
Manchester Royal Infirmary.—H.S.'s. £25 and £50.
Middlesex Hospital, W.—P.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Hon. Asst. Oph. S.
Monmouthshire Education Committee.—Asst. M.O.'s. £500. Also School Dentist. £400.
Mount Vernon Hospital for Consumption and Diseases of the Chest, Northwood, Middlesex.—Asst. P.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Hon. Dent. S. Also H.P.
Newport, Mon., Royal Gwent Hospital.—Three Res. M.O.'s £225, £200, and £160 respectively.
Northampton, Northamptonshire County Council Education Committee.—School Dentist. £400.
Norwich, Norfolk and Norwich Hospital.—Cas. O. £200.
Nottingham General Dispensary.—Res. S. £300.
Oxford, Radcliffe Infirmary and County Hospital.—Hon. Obstet., P., Neurol., Asst. S. and S. Registrar.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Ophth. S.
Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Asst. Res. M.O. £60.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. P. Ophth. S.
Reading, Royal Berkshire Hospital.—H.P. and Sec. H.S. £200.
Rochdale Infirmary and Dispensary.—Junior H.S. £125.
Royal Chest Hospital, City-road, E.C.—Two Asst. M.O.'s for Tuberc. Disp. £350. Also Clin. Assts.
Royal Dental Hospital of London, Leicester-square.—Asst. Dental S.
Royal Free Hospital, Gray's Inn-road, W.C.—H.S's. £250.
Royal London Ophthalmic Hospital, City-road E.C.—Asst. S.
St. George's Hospital, S.W.—Rs. Asst. S. £350.
Salford Royal Hospital.—Anæsthetist. £50.
Sheffield Royal Hospital.—Res. Asst. Cas. O. £120.
Sheffield Royal Infirmary.—H.S. £150.
Smethwick County Borough.—Female Asst. M.O. £500.
Southampton County Borough.—Asst. M.O.H. £500.
Spenborough Urban District.—M.O. and Sch. M.O. £600.
Sunderland Education Committee.—Asst. Sch. M.O. £500.
Throat Hospital, Golden-square, W.—Hon. Anæst. and Hon. Dent. S.
Torquay, Torbay Hospital.—H.S. £200.
Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £200.
Virol Research Laboratories, Bedford-square, W.C.—Asst. Path.
Wakefield County Council of the West Riding of Yorkshire.—Chief Tuberc. O. £750.
Wakefield General Hospital.—Jun. H.S. £150.
Western Dispensary, Rochester Row, Westminster.—Vacancies on Attending Medical Staff.
Western General Dispensary, Marylebone-road, N.W.—Hon. P.
Westminster Hospital, Broad Sanctuary, S.W.—Asst. P. Also Asst. S.
Winchester, Hampshire County Council.—Two Asst. M.O.'s. £450.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Grassington, Darwen, Gatehouse, Oban, and at Kinsale.

Births, Marriages, and Deaths.

BIRTHS.

BRUNSKILL.—On Oct. 22nd, at Chenies, Headley, Hants, the wife of Lieutenant-Colonel J. H. Brunskill, D.S.O., O.B.E., R.A.M.C., of a son.

CAMPBELL.—On Oct. 24th, at Coates-crescent, Edinburgh, the wife of Basil Patrick Campbell, M.D., F.R.C.S. Edin., of a son.

GALBRAITH.—On Oct. 28th, at 14, Sandyford place, Glasgow, the wife of Walter Weir Galbraith, M.B., Ch.B., of a daughter.

PARAMORE.—On Oct. 22nd, at Elmfield, Redhill, Surrey, the wife of W. J. Paramore, M.R.C.S., L.R.C.P., of a son.

DEATHS.

ALLINSON.—On Oct. 20th, at "Stonegate," King's Lynn, Henry Calthrop Allinson, M.R.C.S., L.S.A., aged 63 years.

DAVY.—On Oct. 18th, at his residence, Spring-terrace, Richmond, Surrey, Francis Arthur Davy, Lieutenant-Colonel, late R.A.M.C., aged 73.

FOWLER.—On Oct. 26th, at Ardvoulan, Poole-road, Bournemouth, Frank Fowler, M.D., aged 54.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Nov. 4th.

SURGERY: SUB-SECTION OF ORTHOPÆDICS (Hon. Secretaries—A. S. Blundell Bankart, R. C. Elmslie): at 5 P.M.
Cases will be shown.

PATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jones): at 8.30 P.M.
Dr. Dennis Embleton: Sphenoidal Empyema and Epidemic Meningitis.
Professor Arthur Powell: A Bodo-like Flagellate persisting in the Urine.

Wednesday, Nov. 5th.

SURGERY (Hon. Secretaries—Cyril A. R. Nitch, Herbert J. Paterson): at 5.30 P.M.
Discussion and Exhibition of Specimens of Secondary Deposits in Bone mistaken for Primary Tumours, to be opened by the President, Sir John Bland-Sutton.
N.B.—Members of the Section are specially invited to attend the meeting of the Section of Anæsthetics. (See below.)

OPHTHALMOLOGY (Hon. Secretaries—Malcolm Hepburn, W. H. McMullen): at 8.30 P.M.
Cases (at 8 P.M.). The following will be shown by:—
Dr. Rayner D. Batten: Acute Disseminated Choroido-Retinitis of Doubtful Origin.
Major J. F. Carruthers, R.A.M.C.: Unusual Optic Nerve Tumour.
Mr. G. Winfield Roll: Congenital Abnormality of the Disc.
Paper:
Mr. Rayner D. Batten: The Need of Ophthalmic Physicians for the Advancement of Ophthalmology.

Thursday, Nov. 6th.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 P.M.
Cinematograph Demonstration:
Dr. Drummond Robinson: The Rôle of the Cinematograph in the Teaching of Obstetrics. (Pictures will be shown illustrating the various stages of normal labour by means of both (*a*) animated drawings and (*b*) photographs of actual labour.)
N.B.—Members of other Sections are invited to be present.
Paper:
Dr. Herbert Spencer: Nine Cases of Inversion of the Uterus.

Friday, Nov. 7th.

LARYNGOLOGY (Hon. Secretaries—Irwin Moore, Charles W. Hope): at 4 P.M.
Cases and Specimens will be shown by:—
Dr. Donelan, Dr. Hill, Dr. Dan McKenzie, Mr. Mollison, Dr. Irwin Moore, Mr. Sydney Scott, Mr. Tawse, Sir StClair Thomson, Mr. Herbert Tilley and Dr. Logan Turner.

ANÆSTHETICS (Hon. Secretaries—R. E. Apperly, Ashley S. Daly): at 8.30 P.M.
Paper:
Dr. F. E. Shipway: Intratracheal Insufflation of Ether in Operations which Involve Bleeding into the Air Passages.
Demonstration of Apparatus for Administering Nitrous Oxide and Oxygen by:—
Professor Desmarest (Paris), Dr. Geoffrey Marshall, Dr. F. E. Shipway.
N.B.—Members of the Section of Surgery are specially invited to attend.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith-road, W.
FRIDAY, Nov. 7th.—8.45 P.M., Clinical Meeting. Cases will be shown at 8 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.
Course of Lectures on Housing Problems and Town Planning in Relation to Public Health.
WEDNESDAY, Nov 5th.—4 P.M., Lecture II.:—Dr. W. G. Savage: Housing Problems in Rural Districts.

Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.
THURSDAY, Nov. 6th.—5 P.M., Lecture V.:—Dr. A. C. Inman: Remarks on the Value of Some Laboratory Tests in the Diagnosis of Tuberculosis.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY, Nov. 5th.—4.30 P.M., Dr. J. J. Perkins: Demonstrations in the Wards.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, Nov. 3rd.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Lecture:—Dr. Tooth: Peripheral Neuritis.
TUESDAY, Nov. 4th.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. James Taylor.
WEDNESDAY, Nov 5th.—2 P.M., Lecture:—Mr. Armour: Surgery of the Spinal Cord. 3.30 P.M., Lecture:—Dr. Collier: Progressive Muscular Atrophies
THURSDAY, Nov 6th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. Aldred Turner: Neuroses.
FRIDAY, Nov. 7th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Tooth.
Fee for Post-Graduate Course £5 5s. C. M. Hinds Howell, Dean.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.
MONDAY, Oct. 3rd.—11 A.M., Out-Patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.
TUESDAY.—2 P.M., Out-Patients: Dr. R. Wells. 2.30 P.M., In-patients: Dr. Gibbes.
WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Moon: Aortic Disease.
THURSDAY. 10 A.M., In-patients: Dr. Hamill. 2 P.M., Out-patients: Dr. Price.
FRIDAY.—2 P.M., Out patients: Dr. Gibbes. 2.30 P.M., In patients: Dr Wells.
SATURDAY.—10 A.M., Out-patients: Dr. Hamill.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, Nov. 4th.—Lecture:—Mr. A. H. Burgess: Clinical Types of Gall-stone Disease.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. R. J. Albery, Lond.; Army Medical Service, Director-General of, Lond.

B.—Mr. A. E. Boher, Taunton; Dr. J. Brown, Blackpool; Mr. H. W. Bayly, Lond.; Bombay Medical Council, Registrar of; Miss M. C. Bone, Hove; Board of Agriculture and Fisheries, Lond.; Dr. A. Blackhall Morison, Lond.; Dr. R. Burges, Bartley Wintney; Dr. H. W. Barber, Lond.; Mr. W. G. Ball, Lond.

C.—Dr. F. G. Crookshank, Lond.; Dr. H. P. Cholmeley, Forest Row; Dr. F. G. Cawston, Durban; Miss C. Chaundler, Lond.; Dr. R. Cruchet, Bordeaux; Charing Cross Hospital Medical School, Lond., Dean of; Prof. R. S. Conway, Lond.; Conjoint Board of Scientific Societies, Lond.

D.—Dr. T. N. Darling, Lond.; Dr. V. Dickinson, Lond.; Mr. A. S. Dutton, Lond.; Dr. S. Davies, Worthing.

E.—Mr. W. H. Evans, Sutton; Dr. H. A. Ellis, Middlesbrough; Dr. E. Evans, Cardiff; Dr. J. R. Earp, Lond.; Mr. D. L. Eadie, Edinburgh.

F.—Dr. A. Francis, Lond.; Factories, Chief Inspector of, Lond; Dr. A. Fleming, Lond.; Dr. W. J. Fenton, Lond.; Dr. R. F. Fox, Enham; Capt. H. Fraser, R.A.M.C.

G.—Dr. W. E. Gye, Lond.; Mr. H. Green, Brighton.

H.—Dr. C. L. Hewer, Lond.; Dr. E. Hobhouse, Brighton; Dr. C. T. W. Hirsch, Lond.; Harveian Society of London; Lieut.-Col. A. F. Hurst, O.B.E., R.A.M.C.

I.—India, Secretary of State for, Lond.

J.—Mr. H. Johnson, Lond.; Dr. R. R. James, Lond.; Dr. F. Wood Jones, Lond.

K.—Prof. A. Keith, Lond; King's College Hospital Medical School, Lond., Committee of Management of.

L.—Miss E. Leaf, Lond.

M.—Mr. A. M. Murphy, Lond.; Miss H. M. M. Macaay, M.D., Lond.; Sir G. H. Makins, G.C.M.G., C.B., Lond.; Dr. H. A. Macewen, Lond.; Ministry of Health, Lond.

P.—Dr. G. K. Paterson, Edinburgh; Sir D'Arcy Power, K.B.E., Lond.; Dr. J. F. Porter, Lond.

R.—Dr. W. G. A. Robertson, Ashford; Royal Society, Lond.; Dr. J. D. Rolleston, Lond.; Royal Institution of Great Britain, Lond.; Royal Dental Hospital of London, Members of the Staff of; Royal Institute of Public Health, Lond.

S.—Dr. C. F. Sonntag, Lond.; Dr. A. G. Shera, Eastbourne; Société de Biologie, Paris; Sir G. H. Savage, Lond; Dr. J. E. Sandilands, Lond.

T.—Sir John Tweedy, Lond.; Capt. J. W. T. Thomas, R.A.M.C., Cardiff; Messrs. C. Thomas and Bros., Ltd., Bristol.

W.—Dr. G. A. Watson, Rainhill; Dr. D. White, Lond.; Dr. H. Williamson, Lond., Mrs. C. M. Wenyon, Lond.; Dr. E. M. White, Lond.; Dr. F. P. Weber, Lond.; Dr. J. D. Wynne, Norwich; Dr. A. M. Webber, Nottingham; Mr. A. R. Walker, Lond.; Dr. G. D. H. Wallace, Rochester; Woolwich, Medical Officer of Health of.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£1 16 0
	Six Months	0 18 0
	Three Months	0 9 0
ABROAD	One Year	£2 0 0
	Six Months	1 0 0
	Three Months	0 10 0

Subscriptions may commence at any time, and are payable in advance. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C. 2.

ADVERTISEMENT RATES.

Books and Publications ... ... / Official and General Announcements / Trade and Miscellaneous Advertisements ... ... } Four lines and under ... ... 4s. 0d.

Every additional line, 9d.

Quarter Page, £2. Half a Page, £4. Entire Page, £8.
Special Terms for Position Pages.

Dr. J. E. Sandilands, medical officer of health since 1909 to the Borough of Kensington, has been appointed to succeed Dr. J. A. Turner as executive health officer to the city of Bombay.

Notes, Short Comments, and Answers to Correspondents.

POVERTY IN RELATION TO PULMONARY TUBERCULOSIS.

IN the course of a lecture recently delivered at the Royal Institute of Public Health, Dr. L. S. T. Burrell said that if it were possible to kill poverty we should have gone a long way towards stamping out consumption. The disease was rare among the wealthy, common among the poor; poverty plays a great part as a predisposing cause of the disease, and as overcrowding increases the consumption death-rate also increases. There is a constant relation between overcrowding and poverty which, in consumption statistics, also forms an index to tuberculosis incidence. However, though the cottages are overcrowded there is little real poverty in the country. The people live for the most part in the open air and do not continuously change their residence; whereas in towns one small room may be occupied in the course of a few months by two or three families. Again, in a country cottage filth occurs frequently but rarely squalor. Dr. Burrell emphasised the difficulty in estimating what factors arising out of poverty most assisted the tubercle bacillus. Food was certainly important. One would expect to find an increase in consumption in countries that had had bad food during the war. Consumption had certainly increased in England, but no one could say the food had been bad; the majority of people had lived better than at any other time in their lives. In Germany and other places, where the food really had been bad, the consumption death-rate had gone up enormously. Another important factor was undoubtedly size of houses. Obviously, if infection exists, a patient living in a small ill-ventilated room was in greater danger than one living in a large room where the dose was diluted. In the eighteenth century at Florence a commission was held on the causes of consumption, and the opinion recorded that in small houses it was necessary to burn the belongings and bedding of the occupants, but that in large houses it was only necessary to whitewash the walls of the rooms up to the height of a man; thus the difference between large and small houses was clearly recognised even at that time. Mental depression, again, might prevent a man from resisting tuberculosis. The frame of mind induced by a life of real crushing poverty, with its dull monotony and absence of mental stimulation, might well have a bearing on the subject. The strain on many people during the war might have had a similar effect, as consumption incidence began to rise from the earliest days of the war, while food was not in any way affected till much later. Tuberculosis used to be considered exceptionally common among the mentally weak, but since it was also found in barracks and other institutions, it would be unfair to say that asylum patients were more susceptible.

A further predisposing factor among the poor was the exposure to wet and cold. While the prosperous could take a hot bath and change their clothes after unavoidable exposure the poor had to remain in wet clothes. Many soldiers who developed consumption showed a pre-war history of pleurisy. When the next war came along it would be well to give those men who had had pleurisy work which did not expose them to cold and wet. The incidence of consumption, according to Dr. Burrell, did not vary greatly in the cold or hot climates. The passage from a stuffy atmosphere into a cold one caused consumption or any other disease to flare up. Other factors were air and light. People who visited cottages sometimes forgot that the poor often had to choose between living in a cold or in a stuffy atmosphere. It was often worse for a family to suffer from cold than to keep warm in a fog, if fresh air implies an east wind or a fog. He said that acute tuberculosis often followed acute influenza, and although it was extremely unhealthy to live in a stuffy room it was unfair to blame the poor for so doing. Even in sanatoriums there was at present a strong movement for giving more warmth. During the recent influenza epidemic hardly anyone at Brompton had colds doubtless owing to the well heated wards. Overcrowding thus plays some part, but only an indirect part. In the presence of happiness, good food, and cleanliness, actual overcrowding in itself would not, in his opinion, predispose to consumption, provided that no one of the individuals inhabiting the overcrowded house was himself tuberculous. Overcrowding did not lower the general health to such a degree as to make the patient more liable to consumption.

In summing up, he suggested that under poverty, in relation to pulmonary tuberculosis, should be included insufficient and bad food, the serious risk of exposure to undiluted infection, unhappiness and mental depression, exposure, lack of fresh air and light, and overcrowding. All these factors prevented the individual from resisting tuberculosis and the ultimate cause of them all was poverty.

MEDICAL APPOINTMENTS UNDER THE MINISTRY OF PENSIONS.

INQUIRIES with regard to appointments for posts of medical referees should be addressed to the Commissioner of Medical Service of the region in which the appointment is desired. The following is a revised list (see THE LANCET, July 19th, p. 119) of the regions with their respective Commissioners and county boundaries (C.B.):—

1. Scotland: Dr. George R. Gibson, D.S.O., 59, Cockburn-street, Edinburgh. C.B., the whole of Scotland.
2. Northern: Dr. Hugh Richardson, D.S.O., 47, Pilgrim-street, Newcastle-on-Tyne. C.B., Northumberland, Berwick, Durham, Cumberland.
3. North-Western: Dr. A. H. Williams, 13, Piccadilly, Manchester. C.B., Westmorland, Lancs, Cheshire, Isle of Man.
4. Yorkshire: Dr. C. H. Milburn, O.B.E., Basinghall Buildings, Basinghall-street, Leeds. C.B., Yorkshire.
5. Wales: Dr. Bickerton Edwards, O.B.E., Angel Hotel, Westgate-street, Cardiff. C.B., the whole of Wales and Monmouthshire.
6. West Midlands: Dr. F. R. Hill, Bethany, Loveday-street, Birmingham. C.B., Staffs, Shropshire, Hereford, Worcester, Warwick.
7. East Midlands: Dr. A. B. Ward, D.S.O. (temporary address, care of C.M.S., Yorkshire Region), Nottingham. C.B., Derby, Notts, Lincoln, Leicester, Rutland, Northants.
8. South-Western: Dr. James Young, Cliftondown Buildings, Bristol. C.B., Glo'ster, Wilts, Dorset, Somerset, Devon, Cornwall.
9. Eastern: Dr. Basil Rhodes, 80, Westbourne-terrace, Paddington, W.2. C.B., Norfolk, Suffolk, Cambs, Oxford, Huntingdon, Beds, Berks, Bucks, Hereford, Essex, and Middlesex.
10. London: Dr. H. I. Neilson, C.B.E., Hotel Windsor, Victoria-street, S.W. 1. C.B., Administrative County of London.
11. South-Eastern: Dr. McLeod Veitch, 22, Grosvenor-gardens, S.W. 1. C.B., Kent, Surrey, Sussex, Hants, Isle of Wight, and Channel Islands.
12. Ulster: Dr. A. E. Knight, D.S.O., M.C., Grand Central Hotel, Belfast. C.B., the Province of Ulster.
13. Ireland, South: Dr. D. A. Carruthers, 9, Upper Mount-street, Dublin. C.B., the Provinces of Connaught, Leinster, and Munster.

A PROSECUTION UNDER THE VENEREAL DISEASES ACT, 1917.

A HERBALIST was recently prosecuted at Bootle under the Venereal Diseases Act, 1917, the charge being that he had treated for reward a person suffering from venereal disease. Found guilty, the herbalist was fined £20. The deputy town clerk, prosecuting on behalf of the medical officer of health, invited the magistrates to send the defendant to prison without the option of a fine, pointing out that they had the power to impose a fine of £100 or a term of imprisonment of six months with or without hard labour. The bench, however, took the view that as the case was the first under the Act to come before them a lesser penalty would be sufficient. As the defendant had to ask for time in which to find the moderate fine it is possible that a heavier imposition would have put a term to his activities, but the magisterial decision should make him less dangerous to the public. He and others will have received a warning by which potential patients will profit. It was a typical case of its kind, the quack charged the man who chose to put himself in his hands, 5*s.* a visit, and on one occasion 7*s.* 6*d.*, and his victim paid these fees until he found himself so much worse that he was obliged to go to the Borough Hospital, where an operation was performed upon him.

It will be remembered that the Act is applied to a particular district not by the local authority but by the Government Department, which first has to satisfy itself that there is a satisfactory scheme in the area in question under which cases of venereal disease will be treated gratuitously. Of course, under the Act all advertising of alleged curative treatment or remedies for venereal disease is forbidden, but at the same time to prevent it entirely, if discreetly carried on, is difficult, and the attraction exercised by specious advertisement in such matters is well known. Again, prosecutions are instituted under twofold difficulties. In the first place, it is by no means easy to find out that a case of venereal disease is being treated by an unqualified person whose patients may be doctored by him for any other complaint without violating the law. In the second place, the victim will probably be extremely unwilling to appear in court as a witness, but his, or her, evidence can hardly be dispensed with. In the case at Bootle the man had evidently satisfied himself before he went to the hospital that he had paid money which he could ill-afford for treatment which had done him no good or actual harm, and this may have made him willing to come forward. The desire of the witness to

avoid publicity was met by the prosecuting advocate handing in his name on paper, a course which the bench wisely sanctioned. In this way the prosecution was brought to a satisfactory conclusion, upon which the medical officer of health at Bootle is to be congratulated.

The obtaining of a conviction in such a case suggests the question whether the Venereal Diseases Act, 1917, may prove to be a first step towards the forbidding by law of all unqualified practice. This would be easier in some respects than the depriving of the unqualified person of one class of patients only. With regard to the condition of the provision of free treatment referred to above, without which the Venereal Diseases Act is not applied to any area, if this be regarded as a precedent which future legislation must follow, free treatment for all diseases would hardly be provided. The Insurance Acts, however, combined with the voluntary hospitals would cover most of the ground, and the unqualified person does not treat his patients for nothing, as the above case demonstrates.

FISH-MEAL AS A FOOD FOR LIVE-STOCK.

THE Board of Agriculture and Fisheries point out, in a useful circular issued last week, that there is available in this country a very material supply of fish-meal suitable as a food for all classes of live-stock. It appears that before the war the production of fish-meal had attained the dimensions of a considerable industry at the larger fishing ports of the United Kingdom. It is estimated that in 1913, out of a total production of 40,000 tons of fish-meal, 30,000 tons were exported to the continent, mainly to Germany, where it found a ready sale. Owners of live-stock in this country would do well to bear these facts in mind, for fish-meal used intelligently, has been proved to be a valuable acquisition in the food-supply, not only for pigs and poultry, but other classes of live stock. Yet so far this highly nutritious product has been little used for horses, cattle, sheep, and pigs, the total demand being still far below what the potential supply will be when the fishing industry is fully restored. It is to be hoped that a return to export trade will be avoided, and that British farmers will realise that in fish-meal they have a cheap and abundant source of nitrogenous food. The circular gives instructions how best to employ the meal, blending it with other food products.

A USEFUL MATERNITY BELT.

WE have received from the medical officer to the Archer Street Antenatal Welfare Centre a pattern of an inexpensive belt devised by the sister-superintendent to replace corsets in pregnant women. The belt has been found useful in practice and is warmly recommended by the medical officer. The patients at such centres present themselves complaining of painful varicose veins in the legs, and occasionally in the vulva, and are found on examination to be wearing tight garters and cheap corsets that press the abdomen downwards. The substitution of suspenders for garters can be effected without much argument as a rule, but the women cling obstinately to their corsets. However, when they are persuaded to try this boneless contrivance they admit that it gives at least as much support to the back and is more comfortable. This belt has been tried on a dozen patients, and in every case there has been marked improvement in the patient's condition and comfort. The belt consists of a shaped band about 10 inches in width in the front with tapering ends which pass round the body, through a slit in the side, and are fastened to the specially thickened lower edge of the belt in front by safety-pins. It is intended to be put on before rising in the morning, and is kept in place by soft elastic tubes passing under each thigh; suspenders can be attached to its lower surface. It can be obtained at 7*s.* 6*d.* in swansdown and double flannel, or at 5*s.* in unbleached calico-lined flannelette, from Miss Edith Haslam, Sister-Superintendent of the Welfare Centre, 20, Archer-street, W. 11.

COLONIAL HEALTH REPORTS.

Zanzibar.—A report on the Blue-book for 1918 states that at the last Census the population of the island of Zanzibar was 113,624 (42,991 adult males, 49,210 adult females, and 21,423 children), and that of Pemba 83,109 (28,463 adult males, 31,894 adult females, and 22,752 children): total, 196,733. The birth-rate (births registered) for the year was 19·4 per 1000, as against 21·0 per 1000 in 1917. Measures are being taken to ensure more accurate registration of births, and it is considered probable, when the registration of all births is secured, that it will be found that the births equal or even exceed the deaths, contrary to opinion based on the figures now available. The islands were free from any severe epidemic of disease except influenza, which made its appearance in October. There were 44 deaths from tuberculosis, 26 from malaria, 6 from dysentery, 3 from cerebro-spinal meningitis, and 2 from blackwater fever. There was no case of plague. The systematic collection of rats in the town of Zanzibar was carried on as in past years. 15,960 were examined microscopically with negative results. Cases of influenza had occurred in British East Africa in October, following the arrival in Mombasa of two ships from Bombay on Sept. 23rd and Oct. 17th. Deaths had taken place *en voyage* on each of these ships. On Oct. 26th a circular was issued by the medical officer of health of Zanzibar requesting all local medical practitioners to notify suspicious cases. On Nov. 7th a meeting of the medical practitioners of the town was held to decide on means to be adopted to check the spread of the disease, and a circular of instructions was issued. On Oct. 28th the death of an Ithnasheri khoja from influenza symptoms and pneumonia was reported. By Nov. 15th the deaths numbered 33. On Nov. 17th the medical officer of health himself succumbed after a week's illness. On Nov. 18th all public meetings, processions, and entertainments were prohibited by a decree, schools were closed, and church services reduced to a minimum. Free dispensaries were established in the town and all stations in the island, and all headmen of villages were supplied with medicines and printed instructions in Kiswahili and Arabic for their administration. Inspectors were sent travelling throughout the island to report cases and progress of the disease. A central soup kitchen was established at the Health Office, and there was systematic distribution of soup free to all needing ready nourishment. The different Indian communities in the town were induced to open their own community hospitals, and four were opened. In addition cases were treated at Government hospitals and at the Infectious Diseases Hospital. The total number of deaths in both the islands was 1446.

NATIONAL BABY WEEK COUNCIL.

A MEETING of the National Baby Week Council was held on Oct. 21st, when the following resolutions were passed:—

That it is the duty of all interested in infant welfare to use every effort to secure that the Borough and District Councils carry out as speedily as possible adequate housing schemes.

That, in view of the continuous and conclusive evidence that the measures of liquor control in this country since 1915 have directly saved the lives of very many infants, and have been of indirect service in various ways to motherhood and infancy, it is imperative in the interests of the race that some effective control should be permanently maintained.

A NEW SURFACE MARKING.

To the Editor of THE LANCET.

SIR,—When recently examining a pensioner suffering from fractured femur I tried to ascertain the amount of shortening in the usual way, by measuring from ant. sup. spine to int. malleolus. The man then informed me that when he was a prisoner in a German hospital the surgeon measured from the umbilicus. I tried this way and obtained the same result as by the more orthodox measurement. I have never heard of this method before and it appears to have some advantages: (1) The proximal end of the tape does not require to be shifted; (2) the umbilicus is more of a fixed point than the skin over the ant. sup. spines (which themselves are not always easy to ascertain exactly). I do not know if the tilting of the pelvis would alter the correctness of this measurement. Possibly there is nothing new about it.

I am, Sir, yours faithfully,

Oct. 20th, 1919. MEDICAL REFEREE.

RADIOLOGY AND RADIUM THERAPY.

To the Editor of THE LANCET.

SIR,—Radiology has been defined as "the study of radio-activity and radio-active substances," and radiography as "photography with the Roentgen rays." "Radiology" in England apparently includes radiography, X ray therapeutics, and radium therapy; but in France "radiologie" includes radiotechnique, radiodiagnostic, and radiothérapie, and radiumlogie includes the study of radio-active substances, their physical and biological properties, and radiumthérapie. This word "radiumlogie" looks strange; and I should like to know if any English equivalent has or will be selected by experts. "Radiologie" in French seems to exclude radium.

I am, Sir, yours faithfully,

London, Oct. 25th, 1919. LOGOMACHIST.

THE CULT OF THE SCRUBBING-BRUSH.

To the Editor of THE LANCET.

SIR,—In the hospital to which I am attached there are hundreds of yards of corridors with stone or concrete floors, as there are in most hospitals and many public buildings. These are scrubbed constantly from end to end by kneeling women with pails and scrubbing-brushes. They tell me that they prefer this to the use of mops. It is cold, fatiguing work, which is not wholly desirable for women on health grounds. Can any of your readers tell me whether there is any alternative process for the purpose? Can no mechanical arrangement of rotating brushes or the like be devised which would save time and labour and obviate the necessity of continuing the present system. We can sweep our floors, mow our lawns, and mark our tennis courts by appropriate machines; can we not cleanse our stone floors by some suitable appliance? It would be a real boon if someone would take up this domestic problem.

I am, Sir, yours faithfully,

Oct. 15th, 1919. A HOSPITAL PHYSICIAN.